ENVIRONMENTAL PROTECTION

40 CFR Part 63

[EPA–HQ–OAR–2011–0797; FRL–9491–3]

RIN 2060–AQ92

National Emissions Standards for Hazardous Air Pollutants: Primary Aluminum Reduction Plants

AGENCY: Environmental Protection Agency (EPA).

ACTION: Proposed rule.

SUMMARY: The EPA is proposing amendments to the national emissions standards for hazardous air pollutants for Primary Aluminum Reduction Plants to address the results of the residual risk and technology review that the EPA is required to conduct by the Clean Air Act. If finalized, these proposed amendments would address previously unregulated emissions (*i.e.*, carbonyl sulfide (COS) emissions from new and existing potlines and polycyclic organic matter (POM) emissions from new and existing prebake potlines and existing pitch storage tanks); remove the vertical stud Soderberg one (VSS1) potline subcategory; reduce the MACT limits for POM emissions from horizontal stud Soderberg (HSS) and VSS2 potlines; eliminate the startup, shutdown and malfunction exemption in accordance with recent actions by the United States Court of Appeals for the District of Columbia Circuit; add provisions for facilities to avail themselves of an affirmative defense in the event of a malfunction under certain conditions; and make certain technical and editorial changes. The proposed emissions limits for POM and COS are based on maximum achievable control technology (MACT). While the proposed modifications would result in some reduction in actual emissions of POM from existing pitch storage tanks, reduce the potential emissions of POM from Soderberg potlines, and prevent increases in emissions of COS and sulfur dioxide, the health risks posed by actual emissions from this source category are currently within the acceptable range and would not be reduced appreciably by the proposed modifications.

DATES: Comments must be received on or before January 20, 2012. Under the Paperwork Reduction Act, comments on the information collection provisions are best assured of receiving full consideration if the Office of Management and Budget (OMB) receives a copy of your comments on or before January 5, 2012.

Public Hearing. If anyone contacts the EPA requesting to speak at a public hearing by December 16, 2011, a public hearing will be held on December 21, 2011.

ADDRESSES: Submit your comments, identified by Docket ID Number EPA–HQ–OAR–2011–0797, by one of the following methods:

- *http://www.regulations.gov:* Follow the on-line instructions for submitting comments.
- *Email: a-and-r-docket@epa.gov*, Attention Docket ID Number EPA–HQ–OAR–2011–0797.
- *Fax:* (202) 566–9744, Attention Docket ID Number EPA–HQ–OAR–2011–0797.
- *Mail:* U.S. Postal Service, send comments to: EPA Docket Center, EPA West (Air Docket), Attention Docket ID Number EPA–HQ–OAR–2011–0797, U.S. Environmental Protection Agency, Mail Code: 2822T, 1200 Pennsylvania Ave. NW., Washington, DC 20460. Please include a total of two copies. In addition, please mail a copy of your comments on the information collection provisions to the Office of Information and Regulatory Affairs, Office of Management and Budget (OMB), *Attn:* Desk Officer for EPA, 725 17th Street, NW., Washington, DC 20503.
- *Hand Delivery:* U.S. Environmental Protection Agency, EPA West (Air Docket), Room 3334, 1301 Constitution Ave. NW., Washington, DC 20004, Attention Docket ID Number EPA–HQ–OAR–2011–0797. Such deliveries are only accepted during the Docket's normal hours of operation, and special arrangements should be made for deliveries of boxed information.

Instructions. Direct your comments to Docket ID Number EPA–HQ–OAR–2011–0797. The EPA's policy is that all comments received will be included in the public docket without change and may be made available on-line at *http://www.regulations.gov*, including any personal information provided, unless the comment includes information claimed to be confidential business information (CBI) or other information whose disclosure is restricted by statute. Do not submit information that you consider to be CBI or otherwise protected through *http://www.regulations.gov* or email. The *http://www.regulations.gov* Web site is an ''anonymous access'' system, which means the EPA will not know your identity or contact information unless you provide it in the body of your comment. If you send an email comment directly to the EPA without going through *http://www.regulations.gov*, your email address will be automatically captured and included as part of the comment that is placed in the public docket and made available on the Internet. If you submit an electronic comment, the EPA recommends that you include your name and other contact information in the body of your comment and with any disk or CD–ROM you submit. If the EPA cannot read your comment due to technical difficulties and cannot contact you for clarification, the EPA may not be able to consider your comment. Electronic files should avoid the use of special characters, any form of encryption, and be free of any defects or viruses. For additional information about the EPA's public docket, visit the EPA Docket Center homepage at *http://www.epa.gov/epahome/dockets.htm.*

Docket. The EPA has established a docket for this rulemaking under Docket ID Number EPA–HQ–OAR–2011–0797. All documents in the docket are listed in the *http://www.regulations.gov index.* Although listed in the index, some information is not publicly available, *e.g.*, CBI or other information whose disclosure is restricted by statute. Certain other material, such as copyrighted material, is not placed on the Internet and will be publicly available only in hard copy. Publicly available docket materials are available either electronically in *http://www.regulations.gov* or in hard copy at the EPA Docket Center, EPA West, Room 3334, 1301 Constitution Ave. NW., Washington, DC. The Public Reading Room is open from 8:30 a.m. to 4:30 p.m., Monday through Friday, excluding legal holidays. The telephone number for the Public Reading Room is (202) 566–1744, and the telephone number for the EPA Docket Center is (202) 566–1742.

Public Hearing. If a public hearing is held, it will begin at 10 a.m. on December 21, 2011 and will be held at the EPA's campus in Research Triangle Park, North Carolina, or at an alternate facility nearby. Persons interested in presenting oral testimony or inquiring as to whether a public hearing is to be held should contact Ms. Virginia Hunt, Office of Air Quality Planning and Standards, Sector Policies and Programs Division, (D243–02), U.S. Environmental Protection Agency, Research Triangle Park, North Carolina 27711; telephone number: (919) 541–0832.

FOR FURTHER INFORMATION CONTACT: For questions about this proposed action, contact Mr. David Putney, Sector Policies and Programs Division (D243–02), Office of Air Quality Planning and Standards, U.S. Environmental

Protection Agency, Research Triangle Park, North Carolina 27711, telephone (919) 541–2016; fax number: (919) 541–3207; and email address: *putney.david@epa.gov.* For specific information regarding the risk modeling methodology, contact Dr. Michael Stewart, Office of Air Quality Planning and Standards, Health and Environmental Impacts Division, Air Toxics Assessment Group (C504–06), U.S. Environmental Protection Agency, Research Triangle Park, NC 27711; *telephone number:* (919) 541–7524; *fax number:* (919) 541–0840; and *email address: stewart.michael@epa.gov.* For information about the applicability of the proposed or current national emission standards for hazardous air pollutants (NESHAP) for primary aluminum reduction plants to a particular entity, contact the appropriate person listed in Table 1 of this preamble.

TABLE 1—LIST OF EPA CONTACTS FOR THE NESHAP ADDRESSED IN THIS PROPOSED ACTION

NESHAP for:	OECA Contact [1]	OAQPS Contact [2]
Primary Aluminum Reduction Plants	Patrick Yellin, (202) 564–2970, *yellin.patrick@epa.gov*	David Putney, (919) 541–2016, *putney.david@epa.gov*

[1] EPA Office of Enforcement and Compliance Assurance.
[2] EPA Office of Air Quality Planning and Standards.

SUPPLEMENTARY INFORMATION:

Preamble Acronyms and Abbreviations

Several acronyms and terms used to describe industrial processes, data inventories, and risk modeling are included in this preamble. While this may not be an exhaustive list, the following terms and acronyms are defined here for reference:

ADAF age-dependent adjustment factors
AEGL acute exposure guideline levels
AERMOD air dispersion model used by the HEM–3 model
AMOS ample margin of safety
ANPRM advance notice of proposed rulemaking
ATSDR Agency for Toxic Substances and Disease Registry
BACT best available control technology
BLDS bag leak detection system
CAA Clean Air Act
CBI Confidential Business Information
CEMS continuous emissions monitoring system
CFR Code of Federal Regulations
COS carbonyl sulfide
CTE central tendency exposure
EJ environmental justice
EPA Environmental Protection Agency
ERPG Emergency Response Planning Guidelines
ERT Electronic Reporting Tool
HAP hazardous air pollutants
HEM–3 Human Exposure Model, Version 3
HEPA high efficiency particulate air
HHRAP Human Health Risk Assessment Protocols
HI Hazard Index
HQ Hazard Quotient
ICR information collection request
IRIS Integrated Risk Information System
Km kilometer
LAER lowest achievable emissions rate
lb/yr pounds per year
MACT maximum achievable control technology
MACT Code Code within the NEI used to identify processes included in a source category
MDL method detection level
mg/acm milligrams per actual cubic meter
mg/dscm milligrams per dry standard cubic meter
mg/m^3 milligrams per cubic meter
MIR maximum individual risk
MRL minimum risk level
NAC/AEGL Committee National Advisory Committee for Acute Exposure Guideline Levels for Hazardous Substances
NAICS North American Industry Classification System
NAS National Academy of Sciences
NATA National Air Toxics Assessment
NEI National Emissions Inventory
NESHAP National Emissions Standards for Hazardous Air Pollutants
NOAEL no observed adverse effects level
NRC National Research Council
NTTAA National Technology Transfer and Advancement Act
O&M operation and maintenance
OAQPS Office of Air Quality Planning and Standards
ODW Office of Drinking Water
OECA Office of Enforcement and Compliance Assurance
OHEA Office of Health and Environmental Assessment
OMB Office of Management and Budget
PB–HAP hazardous air pollutants known to be persistent and bio-accumulative in the environment
PM particulate matter
POM polycyclic organic matter
ppmv parts per million volume
RACT reasonably available control technology
RBLC RACT/BACT/LAER Clearinghouse
REL reference exposure level
RFA Regulatory Flexibility Act
RfC reference concentration
RfD reference dose
RIA Regulatory Impact Analysis
RTR residual risk and technology review
SAB Science Advisory Board
SBA Small Business Administration
SCC Source Classification Codes
SOP standard operating procedures
SSM startup, shutdown, and malfunction
TEQ toxic equivalency quotient
TOSHI target organ-specific hazard index
TPY tons per year
TRIM Total Risk Integrated Modeling System
TTN Technology Transfer Network
UF uncertainty factor
$\mu g/m^3$ microgram per cubic meter
UL upper limit
UMRA Unfunded Mandates Reform Act
UPL upper predictive limit
URE unit risk estimate
WHO World Health Organization
WWW worldwide web

Organization of this Document. The information in this preamble is organized as follows:

I. General Information

A. What is the statutory authority for this action?

Section 112 of the CAA establishes a two-stage regulatory process to address emissions of hazardous air pollutants (HAP) from stationary sources. In the first stage, after the EPA has identified categories of sources emitting one or more of the HAP listed in section 112(b) of the CAA, section 112(d) of the CAA calls for us to promulgate national emission standards for hazardous air pollutants (NESHAP) for those sources. ''Major sources'' are those that emit or have the potential to emit (PTE) 10 tons per year (tpy) or more of a single HAP or 25 tpy or more of any combination of HAP. For major sources, these technology-based standards must reflect the maximum degree of emission reductions of HAP achievable (after considering cost, energy requirements and nonair quality health and environmental impacts) and are commonly referred to as maximum achievable control technology (MACT) standards.

MACT standards are to reflect application of measures, processes, methods, systems or techniques including, but not limited to, measures which (1) reduce the volume of or eliminate emissions of pollutants through process changes, substitution of materials or other modifications, (2) enclose systems or processes to eliminate emissions, (3) capture or treat pollutants when released from a process, stack, storage or fugitive emissions point, (4) are design, equipment, work practice or operational standards (including requirements for operator training or certification) or (5) are a combination of the above. CAA section 112(d)(2)(A)–(E). The MACT standard may take the form of a design, equipment, work practice or operational standard where the EPA first determines that either (1) a pollutant cannot be emitted through a conveyance designed and constructed to emit or capture the pollutant or that any requirement for, or use of, such a conveyance would be inconsistent with law, or (2) the application of measurement methodology to a particular class of sources is not practicable due to technological and economic limitations. CAA sections 112(h)(1)–(2).

The MACT ''floor'' is the minimum control level allowed for MACT standards promulgated under CAA section 112(d)(3) and may not be based on cost considerations. For new sources, the MACT floor cannot be less stringent than the emission control that is achieved in practice by the best-controlled similar source. The MACT floors for existing sources can be less stringent than floors for new sources, but they cannot be less stringent than the average emission limitation achieved by the best-performing 12 percent of existing sources in the category or subcategory (or the best-performing five sources for categories or subcategories with fewer than 30 sources). In developing MACT standards, we must also consider control options that are more stringent than the floor. We may establish standards more stringent than the floor (''beyond the floor'' standards) based on the consideration of the cost of achieving the emissions reductions and any nonair quality health and environmental impacts and energy requirements. No beyond the floor standards are proposed in this rulemaking action.

The EPA is then required to review these technology-based standards and to revise them ''as necessary (taking into account developments in practices, processes, and control technologies)'' no less frequently than every 8 years, under CAA section 112(d)(6). In conducting this review, the EPA is not obliged to completely recalculate the prior MACT determination. *NRDC* v. *EPA,* 529 F.3d 1077, 1084 (D.C. Cir. 2008).

The second stage in standard-setting focuses on reducing any remaining ''residual'' risk according to CAA section 112(f). This provision requires, first, that the EPA prepare a *Report to Congress* discussing (among other things) methods of calculating risk posed (or potentially posed) by sources after implementation of the MACT standards, the public health significance of those risks, and the EPA's recommendations as to legislation regarding such remaining risk. The EPA prepared and submitted this report (*Residual Risk Report to Congress,* EPA–453/R–99–001) in March 1999. Congress did not act in response to the report, thereby triggering the EPA's obligation under CAA section 112(f)(2) to analyze and address residual risk.

CAA section 112(f)(2) requires us to determine, for source categories subject to MACT standards, whether the emissions standards provide an ample margin of safety to protect public health. If the MACT standards for HAP ''classified as a known, probable, or possible human carcinogen do not reduce lifetime excess cancer risks to the individual most exposed to emissions from a source in the category or subcategory to less than 1-in-1 million,'' the EPA must promulgate residual risk standards for the source category (or subcategory), as necessary, to provide an ample margin of safety to protect public health. In doing so, the EPA may adopt standards equal to existing MACT standards if the EPA determines that the existing standards are sufficiently protective. *NRDC* v. *EPA,* 529 F.3d 1077, 1083 (D.C. Cir. 2008). (''If EPA determines that the existing technology-based standards provide an ''ample margin of safety,'' then the agency is free to readopt those standards during the residual risk rulemaking.'') The EPA must also adopt more stringent standards, if necessary, to prevent an adverse environmental effect[1] but must consider cost, energy, safety and other relevant factors in doing so.

Section 112(f)(2) of the CAA expressly preserves our use of a two-step process for developing standards to address any residual risk and our interpretation of ''ample margin of safety'' developed in the *National Emission Standards for Hazardous Air Pollutants: Benzene Emissions From Maleic Anhydride Plants, Ethylbenzene/Styrene Plants, Benzene Storage Vessels, Benzene Equipment Leaks, and Coke By-Product Recovery Plants (Benzene NESHAP)* (54 FR 38044, September 14, 1989). The first step in this process is the determination of acceptable risk. The second step provides for an ample margin of safety to protect public health, which is the level at which the standards are set (unless a more

[1] ''Adverse environmental effect'' is defined in CAA section 112(a)(7) as any significant and widespread adverse effect, which may be reasonably anticipated to wildlife, aquatic life or natural resources, including adverse impacts on populations of endangered or threatened species or significant degradation of environmental qualities over broad areas.

stringent standard is required to prevent, taking into consideration costs, energy, safety, and other relevant factors, an adverse environmental effect).

The terms ''individual most exposed,'' ''acceptable level,'' and ''ample margin of safety'' are not specifically defined in the CAA. However, CAA section 112(f)(2)(B) preserves the interpretation set out in the Benzene NESHAP, and the United States Court of Appeals for the District of Columbia Circuit in *NRDC* v. *EPA,* 529 F.3d 1077, concluded that the EPA's interpretation of subsection 112(f)(2) is a reasonable one. See *NRDC* v. *EPA,* 529 F.3d at 1083 (''[S]ubsection 112(f)(2)(B) expressly incorporates the EPA's interpretation of the Clean Air Act from the Benzene standard, complete with a citation to the **Federal Register**''). (D.C. Cir. 2008). See also, *A Legislative History of the Clean Air Act Amendments of 1990,* volume 1, p. 877 (Senate debate on Conference Report). We notified Congress in the *Residual Risk Report to Congress* that we intended to use the Benzene NESHAP approach in making CAA section 112(f) residual risk determinations (EPA–453/R–99–001, p. ES–11).

In the Benzene NESHAP, we stated as an overall objective:

* * * in protecting public health with an ample margin of safety, we strive to provide maximum feasible protection against risks to health from hazardous air pollutants by, (1) protecting the greatest number of persons possible to an individual lifetime risk level no higher than approximately 1-in-1 million; and (2) limiting to no higher than approximately 1-in-10 thousand [*i.e.,* 100-in-1 million] the estimated risk that a person living near a facility would have if he or she were exposed to the maximum pollutant concentrations for 70 years.

The agency also stated that, ''The EPA also considers incidence (the number of persons estimated to suffer cancer or other serious health effects as a result of exposure to a pollutant) to be an important measure of the health risk to the exposed population. Incidence measures the extent of health risk to the exposed population as a whole, by providing an estimate of the occurrence of cancer or other serious health effects in the exposed population.'' The agency went on to conclude that ''estimated incidence would be weighed along with other health risk information in judging acceptability.'' As explained more fully in our *Residual Risk Report to Congress,* the EPA does not define ''rigid line[s] of acceptability,'' but considers rather broad objectives to be weighed with a series of other health measures and factors (EPA–453/R–99–001, p. ES–11). The determination of what represents an ''acceptable'' risk is based on a judgment of ''what risks are acceptable in the world in which we live'' (*Residual Risk Report to Congress,* p. 178, quoting the Vinyl Chloride decision at 824 F.2d 1165) recognizing that our world is not risk-free.

In the Benzene NESHAP, we stated that ''EPA will generally presume that if the risk to [the maximum exposed] individual is no higher than approximately 1-in-10 thousand, that risk level is considered acceptable.'' 54 FR 38045. We discussed the maximum individual lifetime cancer risk (or maximum individual risk (MIR)) as being ''the estimated risk that a person living near a plant would have if he or she were exposed to the maximum pollutant concentrations for 70 years.'' *Id.* We explained that this measure of risk ''is an estimate of the upper bound of risk based on conservative assumptions, such as continuous exposure for 24 hours per day for 70 years.'' *Id.* We acknowledge that maximum individual lifetime cancer risk ''does not necessarily reflect the true risk, but displays a conservative risk level which is an upper-bound that is unlikely to be exceeded.'' *Id.*

Understanding that there are both benefits and limitations to using maximum individual lifetime cancer risk as a metric for determining acceptability, we acknowledged in the 1989 Benzene NESHAP that ''consideration of maximum individual risk * * * must take into account the strengths and weaknesses of this measure of risk.'' *Id.* Consequently, the presumptive risk level of 100-in-1 million (1-in-10 thousand) provides a benchmark for judging the acceptability of maximum individual lifetime cancer risk, but does not constitute a rigid line for making that determination.

The agency also explained in the 1989 Benzene NESHAP the following: ''In establishing a presumption for MIR, rather than a rigid line for acceptability, the agency intends to weigh it with a series of other health measures and factors. These include the overall incidence of cancer or other serious health effects within the exposed population, the numbers of persons exposed within each individual lifetime risk range and associated incidence within, typically, a 50-kilometer (km) exposure radius around facilities, the science policy assumptions and estimation uncertainties associated with the risk measures, weight of the scientific evidence for human health effects, other quantified or unquantified health effects, effects due to co-location of facilities and co-emission of pollutants.'' *Id.*

In some cases, these health measures and factors taken together may provide a more realistic description of the magnitude of risk in the exposed population than that provided by maximum individual lifetime cancer risk alone. As explained in the Benzene NESHAP, ''[e]ven though the risks judged 'acceptable' by the EPA in the first step of the Vinyl Chloride inquiry are already low, the second step of the inquiry, determining an 'ample margin of safety,' again includes consideration of all of the health factors, and whether to reduce the risks even further.'' In the ample margin of safety decision process, the agency again considers all of the health risks and other health information considered in the first step. Beyond that information, additional factors relating to the appropriate level of control will also be considered, including costs and economic impacts of controls, technological feasibility, uncertainties and any other relevant factors. Considering all of these factors, the agency will establish the standard at a level that provides an ample margin of safety to protect the public health, as required by CAA section 112(f). 54 FR 38046.

As discussed in the previous section of this preamble, we apply a two-step process for developing standards to address residual risk. In the first step, the EPA determines whether risks are acceptable. This determination ''considers all health information, including risk estimation uncertainty, and includes a presumptive limit on maximum individual lifetime [cancer] risk (MIR) [2] of approximately 1-in-10 thousand [*i.e.,* 100-in-1 million].'' 54 FR 38045. In the second step of the process, the EPA sets the standard at a level that provides an ample margin of safety ''in consideration of all health information, including the number of persons at risk levels higher than approximately 1-in-1 million, as well as other relevant factors, including costs and economic impacts, technological feasibility, and other factors relevant to each particular decision.'' *Id.*

In past residual risk determinations, the EPA presented a number of human health risk metrics associated with emissions from the category under review, including: The MIR; the numbers of persons in various risk ranges; cancer incidence; the maximum noncancer hazard index (HI); and the maximum acute noncancer hazard. In estimating risks, the EPA considered

[2] Although defined as ''maximum individual risk,'' MIR refers only to cancer risk. MIR, one metric for assessing cancer risk, is the estimated risk were an individual exposed to the maximum level of a pollutant for a lifetime.

source categories under review that are located near each other and that affect the same population. The EPA provided estimates of the expected difference in actual emissions from the source category under review and emissions allowed pursuant to the source category MACT standard. The EPA also discussed and considered risk estimation uncertainties. The EPA is providing this same type of information in support of these actions.

The agency acknowledges that the Benzene NESHAP provides flexibility regarding what factors the EPA might consider in making our determinations and how they might be weighed for each source category. In responding to comment on our policy under the Benzene NESHAP, the EPA explained that: ''The policy chosen by the Administrator permits consideration of multiple measures of health risk. Not only can the MIR figure be considered, but also incidence, the presence of noncancer health effects, and the uncertainties of the risk estimates. In this way, the effect on the most exposed individuals can be reviewed as well as the impact on the general public. These factors can then be weighed in each individual case. This approach complies with the Vinyl Chloride mandate that the Administrator ascertain an acceptable level of risk to the public by employing [her] expertise to assess available data. It also complies with the Congressional intent behind the CAA, which did not exclude the use of any particular measure of public health risk from the EPA's consideration with respect to CAA section 112 regulations, and, thereby, implicitly permits consideration of any and all measures of health risk which the Administrator, in [her] judgment, believes are appropriate to determining what will 'protect the public health.' ''

For example, the level of the MIR is only one factor to be weighed in determining acceptability of risks. The Benzene NESHAP explains ''an MIR of approximately 1-in-10 thousand should ordinarily be the upper end of the range of acceptability. As risks increase above this benchmark, they become presumptively less acceptable under CAA section 112, and would be weighed with the other health risk measures and information in making an overall judgment on acceptability. Or, the agency may find, in a particular case, that a risk that includes MIR less than the presumptively acceptable level is unacceptable in the light of other health risk factors.'' Similarly, with regard to the ample margin of safety analysis, the Benzene NESHAP states that: ''EPA believes the relative weight of the many factors that can be considered in selecting an ample margin of safety can only be determined for each specific source category. This occurs mainly because technological and economic factors (along with the health-related factors) vary from source category to source category.''

B. Does this action apply to me?

The regulated industrial source category that is the subject of this proposal is listed in Table 2 of this preamble. Table 2 of this preamble is not intended to be exhaustive, but rather provides a guide for readers regarding the entities likely to be affected by this proposed action. These standards, once finalized, will be directly applicable to affected sources. Federal, State, local, and Tribal government entities are not affected by this proposed action. As defined in the source category listing report published by the EPA in 1992, the Primary Aluminum Reduction Plant source category is defined as any facility which produced primary aluminum by the electrolytic reduction process.

TABLE 2—NESHAP AND INDUSTRIAL SOURCE CATEGORIES AFFECTED BY THIS PROPOSED ACTION

Source category	NESHAP	NAICS code [1]	MACT code [2]
Primary Aluminum Reduction Plants	Primary Aluminum Reduction Plants	331312	0023

[1] North American Industry Classification System.
[2] Maximum Achievable Control Technology.

C. Where can I get a copy of this document and other related information?

In addition to being available in the docket, an electronic copy of this proposal will also be available on the World Wide Web (WWW) through the EPA's Technology Transfer Network (TTN). Following signature by the EPA Administrator, a copy of this proposed action will be posted on the TTN's policy and guidance page for newly proposed or promulgated rules at the following address: *http://www.epa.gov/ttn/atw/rrisk/rtrpg.html.* The TTN provides information and technology exchange in various areas of air pollution control.

Additional information is available on the residual risk and technology review (RTR) Web page at: *http://www.epa.gov/ttn/atw/rrisk/rtrpg.html.* This information includes source category descriptions and detailed emissions estimates and other data that were used as inputs to the risk assessments.

D. What should I consider as I prepare my comments for the EPA?

Submitting CBI. Do not submit information containing CBI to the EPA through *http://www.regulations.gov* or email. Clearly mark the part or all of the information that you claim to be CBI. For CBI information on a disk or CD ROM that you mail to the EPA, mark the outside of the disk or CD ROM as CBI and then identify electronically within the disk or CD ROM the specific information that is claimed as CBI. In addition to one complete version of the comment that includes information claimed as CBI, a copy of the comment that does not contain the information claimed as CBI must be submitted for inclusion in the public docket. If you submit a CD ROM or disk that does not contain CBI, mark the outside of the disk or CD ROM clearly that it does not contain CBI. Information not marked as CBI will be included in the public docket and the EPA's electronic public docket without prior notice. Information marked as CBI will not be disclosed except in accordance with procedures set forth in 40 CFR part 2. Send or deliver information identified as CBI only to the following address: Roberto Morales, OAQPS Document Control Officer (C404–02), Office of Air Quality Planning and Standards, U.S. Environmental Protection Agency, Research Triangle Park, North Carolina 27711, Attention Docket ID Number EPA–HQ–OAR–2011–0797.

II. Background

A. What is this source category and how did the MACT standard regulate its HAP emissions?

The NESHAP (or MACT rule) for the Primary Aluminum Reduction Plants was promulgated on October 7, 1997 (62 FR 52407) and amended on November 2, 2005 (70 FR 66285). The rule is applicable to facilities with affected sources associated with the production of aluminum by electrolytic reduction. Aluminum is produced from refined bauxite ore (also known as alumina), using an electrolytic reduction process in a series of cells called a ''potline.'' The raw materials include alumina, coke, pitch and fluoride salts. According to information available on the Web site of The Aluminum Association, Inc. (*http://www.aluminum.org*) approximately 50 percent of the aluminum produced in the U.S. comes from primary aluminum facilities. The two main potline types are prebake (a newer, higher efficiency, lower-emitting technology) and Soderberg (an older, lower efficiency, higher-emitting technology). There are currently 15 facilities located in the United States that are subject to the requirements of this NESHAP: 14 primary aluminum production plants and one carbon-only prebake anode production facility. These 14 primary aluminum production plants have approximately 53 potlines that produce aluminum. Each plant has a paste production operation, and 12 of the 14 plants have anode bake furnaces. Twelve of the 14 facilities utilize prebake potlines; the other 2 utilize Soderberg potlines. According to The Aluminum Association, Inc., due to a decrease in demand for aluminum, four of the 14 facilities are currently idle including 1 Soderberg facility. The major HAPs emitted by these facilities are carbonyl sulfide (COS), hydrogen fluoride (HF), and polycyclic organic matter (POM), specifically polycyclic aromatic hydrocarbons (PAH).

The standards promulgated in 1997 and 2005 apply to emissions of HF, measured using total fluorides (TF) as a surrogate, from all potlines and anode bake furnaces and POM (as measured by methylene chloride extractables) from Soderberg potlines, anode bake furnaces, paste production plants and pitch storage tanks associated with primary aluminum reduction. Affected sources under the rules are each potline, each anode bake furnace (except for one that is located at a facility that only produces anodes for use off-site), each paste production plant, and each new pitch storage tank.

The NESHAP designated seven subcategories of existing potlines based primarily on differences in the process operation and configuration. The control of primary emissions from the reduction process is typically achieved by the installation of a dry alumina scrubber (with a baghouse to collect the alumina and other particulate matter). The MACT control technology typically used for anode bake furnaces is a dry alumina scrubber, and a capture system vented to a dry coke scrubber is used for control of paste production plants. See Table 3 for the emission limits.

TABLE 3—SUMMARY OF CURRENT MACT EMISSION LIMITS FOR EXISTING SOURCES UNDER THE 1997 NESHAP, AND THE 2005 AMENDMENTS

Source	Pollutant	Emission limit
Potlines:[1]		
CWPB1 potlines	TF	0.95 kg/Mg (1.9 lb/ton) of aluminum produced.
CWPB2 potlines	TF	1.5 kg/Mg (3.0 lb/ton) of aluminum produced.
CWPB3 potlines	TF	1.25 kg/Mg (2.5 lb/ton) of aluminum produced.
SWPB potlines	TF	0.8 kg/Mg (1.6 lb/ton) of aluminum produced.
VSS1 potlines	TF	1.1 kg/Mg (2.2 lb/ton) of aluminum produced.
	POM	1.2 kg/Mg (2.4 lb/ton) of aluminum produced.
VSS2 potlines	TF	1.35 kg/Mg (2.7 lb/ton) of aluminum produced.
	POM	2.85 kg/Mg (5.7 lb/ton) of aluminum produced.
HSS potlines	TF	1.35 kg/Mg (2.7 lb/ton) of aluminum produced.
	POM	2.35 kg/Mg (4.7 lb/ton) of aluminum produced.
Paste Production	POM	Install, operate, and maintain equipment for capture of emissions and vent to a dry coke scrubber.
Anode Bake Furnace (collocated with a primary aluminum plant).	TF	0.10 kg/Mg (0.20 lb/ton) of green anode.
	POM	0.09 kg/Mg (0.18 lb/ton) of green anode.

[1] CWPB1 = Center-worked prebake potline with the most modern reduction cells; includes all center-worked prebake potlines not specifically identified as CWPB2 or CWPB3.
CWPB2 = Center-worked prebake potlines located at Alcoa in Rockdale, Texas; Kaiser Aluminum in Mead, Washington; Ormet Corporation in Hannibal, Ohio; Ravenswood Aluminum in Ravenswood, West Virginia; Reynolds Metals in Troutdale, Oregon; and Vanalco Aluminum in Vancouver, Washington.
CWPB3 = Center-worked prebake potline that produces very high purity aluminum, has wet scrubbers as the primary control system, and is located at the primary aluminum plant operated by NSA in Hawesville, Kentucky.
HSS = Horizontal stud Soderberg potline.
SWPB = Side-worked prebake potline.
VSS1 = Vertical stud Soderberg potline at Northwest Aluminum in The Dalles, Oregon, or at Columbia Aluminum in Goldendale, Washington.
VSS2 = Vertical stud Soderberg potlines at Columbia Falls Aluminum in Columbia Falls, Montana.

TABLE 4—SUMMARY OF CURRENT MACT EMISSION LIMITS FOR NEW SOURCES UNDER THE 1997 NESHAP AND 2005 AMENDMENTS

Source	Pollutant	Emission limit
All Potlines	TF	0.6 kg/Mg (1.2 lb/ton) of aluminum produced.
VSS1, VSS2, and HSS potlines	POM	0.32 kg/Mg (0.63 lb/ton) of aluminum produced.
Paste Production	POM	Install, operate, and maintain equipment for capture of emissions and vent to a dry coke scrubber.
Anode Bake Furnace (collocated with a primary aluminum plant).	TF	0.01 kg/Mg (0.020 lb/ton) of green anode
	POM	0.025 kg/Mg (0.05 lb/ton) of green anode.
Pitch storage tanks	POM	Emission control system designed and operated to reduce inlet emissions by 95 percent or greater.

The 1997 NESHAP for primary aluminum reduction plants incorporates new source performance standards for potroom groups; these emission limits are listed in Table 4. The limits for new Soderberg facilities apply to any Soderberg facility that adds a new potroom group to an existing potline or is associated with a potroom group that meets the definition of a modified or reconstructed potroom group. Since these POM limits are very stringent, they effectively preclude the operation of any new Soderberg potlines.

Compliance with the emission limits in the current rule is demonstrated by performance testing which can be addressed individually for each affected source or according to emissions averaging provisions. Monitoring requirements include monthly measurements of TF secondary emissions, quarterly measurement of POM secondary emissions and annual measurement of primary emissions, continuous parameter monitoring for each emission control device, a monitoring device to track daily weight of aluminum produced, daily inspection for visible emissions, and daily inspection of wet roof scrubbers. Recordkeeping for the rule is consistent with the General Provisions requirements with the addition of recordkeeping for daily production of aluminum, records supporting emissions averaging and records documenting the portion of TF measured as particulate matter or gaseous form.

B. What data collection activities were conducted to support this action?

For the Primary Aluminum Reduction Plant source category, we compiled a preliminary dataset using available information, reviewed the data, and made changes where necessary. The preliminary dataset was based on data in the 2002 National Emissions Inventory (NEI) Final Inventory, Version 1 (made publicly available on February 26, 2006), and the 2005 National Emissions Inventory (NEI), version 2.0 (made publicly available in October 2008). The NEI is a database that contains information about sources that emit criteria air pollutants, their precursors, and HAP. The NEI database includes estimates of annual air pollutant emissions from point and volume sources, emission release characteristic data such as height, velocity, temperature and location latitude/longitude coordinates.

We reviewed the NEI datasets, corrected geographic coordinates and stack parameters in consultation with the facilities, and made changes based on available information. We also reviewed the emissions and other data to identify data anomalies that could affect risk estimates. The 2005 NEI was then updated to develop the 2005 National Air Toxics Assessment (NATA) Inventory. Subsequently, in April 2011, we received test data and other information through an Information Collection Request (ICR) from 11 of the 15 facilities in the source category. These ICR data were then used along with the 2005 NATA inventory data to develop the emissions dataset for this source category, which includes our best estimates of actual emissions of HAP for the facilities. This dataset was then used in the risk modeling analyses to estimate the risks due to actual emissions for the source category.

POM emissions were allocated to specific POM compounds on the basis of the fractional contributions of these compounds to the actual POM emissions, as determined (as appropriate) from an average of test data for two prebake potlines and an average of data from two Soderberg facilities. Based on knowledge of the industry and previous testing, we could reasonably expect emissions of approximately 23 POM specific POM compounds from primary aluminum production facilities. The allocation incorporated POM emissions at 50 percent of the detection limit for those compounds ''reported as below detection limit.'' The use of 50 percent of the detection limit is more conservative than assuming that these compounds were not present; an assumption that the compounds were present at the detection limit would be an overestimation. The assumption that these compounds were present at 50 percent of the detection limit represented the midpoint of two extreme options. For Soderberg potline stacks, six out of 38 measurements were below the detection limit. For Soderberg potroom roof vents, 10 out of 38 measurements were below the detection limit. For prebake potline stacks, 21 out of 38 measurements were below the detection limit. For prebake potroom roof vents, 25 out of 38 measurements were below the detection limit.

To estimate allowable emissions, we analyzed the emissions data gathered from the 2002 NEI, the 2005 NEI and responses to the ICR described above. Based on that analysis, we estimated that allowable emissions were generally about 1.5 times higher than actual emissions. Therefore, to calculate allowable emissions we assumed that allowable emissions were 1.5 times greater than actual emissions for all facilities except for one idle Soderberg facility (Columbia Falls). For Columbia Falls, which has the highest potential for emissions of all the facilities, we evaluated site-specific data and estimated that allowable emissions were about 1.9 times higher than actual emissions.

Actual emissions of COS for the industry are estimated to be about 4,400 tons per year (tpy), with an average of about 330 tons per facility. Actual emissions of HF are estimated to be about 1,900 tpy with an average of about 160 tpy per facility. Estimated emissions of speciated compounds of POM were much lower. Estimated actual emissions of identified POM species totaled approximately 180 tpy for the industry. Moreover, POM emissions are much higher from Soderberg facilities compared to prebake facilities. The average POM emissions from prebake facilities are about 4.5 tpy per facility, and the average POM emissions for Soderberg facilities are about 60 tpy per facility. We estimate that approximately one-third of the emissions of POM for both types of potrooms come from the control device stack, and the remainder are secondary emissions emitted from potroom vents. This estimate is based on a summary of emissions derived from reports of emission testing conducted at two prebake facilities and two Soderberg facilities (''Industry Review of Draft POM Speciation and Emissions Data,'' December 19, 2007).

The emissions data, calculations and risk assessment inputs for the Primary Aluminum Reduction Plant source category are described further in *Draft Development of the RTR Emissions Dataset for the Primary Aluminum Production Source Category* which is available in the docket for this proposed rulemaking.

III. Analyses Performed

In this section we describe the analyses performed to support the proposed decisions for the RTR for this source category.

A. How did we address unregulated emissions sources?

In the course of evaluating the Primary Aluminum Reduction Plant source category, we identified certain HAP for which we failed to establish emission standards in the original MACT. See *National Lime* v. *EPA,* 233 F. 3d 625, 634 (DC Cir. 2000) (the EPA has ''clear statutory obligation to set emissions standards for each listed HAP'').

We evaluated establishing emissions limits for COS for the source category and for POM for various emissions points that had not been regulated in the 1997 MACT rule or in the 2005 amendments. Section 112(d)(3)(B) of the CAA requires that the MACT standards for existing sources be at least as stringent as the average emissions limitation achieved by the best performing five sources (for which the Administrator has or could reasonably obtain emissions information) in a category with fewer than 30 sources. The Primary Aluminum source category consists of fewer than 30 sources.

The EPA must exercise its judgment, based on an evaluation of the relevant factors and available data, to determine the level of emissions control that has been achieved by the best performing sources under variable conditions. It is recognized in the case law that the EPA may consider variability in estimating the degree of emissions reduction achieved by best-performing sources and in setting MACT floors. See *Mossville Envt'l Action Now* v. *EPA,* 370 F.3d 1232, 1241–42 (DC Cir 2004) (holding that the EPA may consider emissions variability in estimating performance achieved by best-performing sources and may set the floor at a level that a best-performing source can expect to meet ''every day and under all operating conditions''). More details on how we calculate MACT floors and how we account for variability are described in the *Draft MACT Floor Analysis for the Primary Aluminum Source Category* which is available in the docket for this proposed action.

Carbonyl sulfide (COS) was not regulated in the 1997 NESHAP or in the 2005 amendments for Primary Aluminum Reduction Plants. In this action we analyzed the available data and evaluated options for developing MACT standards for this HAP. Based on all our analyses, which are described in section IV.A of this preamble, we concluded that establishing a standard based on a mass balance equation would be the most appropriate approach. Therefore, we are proposing MACT standards for COS in today's action based on use of a mass balance equation to derive COS emissions based on data on anode coke sulfur content, anode consumption and aluminum production.

Polycyclic organic matter (POM) emissions from prebake potlines were also not regulated in the 1997 NESHAP or in the 2005 amendments. We are proposing MACT limits for new and existing prebake potlines in today's action based on available data. Finally, the 1997 NESHAP included MACT standards for new pitch storage tanks, which required a 95 percent reduction in emissions. However, the rule had no limits for existing storage tanks. We are proposing that existing tanks will be subject to the same standard (*i.e.,* minimum of 95 percent reduction of POM emissions). At least three facilities are currently achieving this level of control on existing tanks.

Further details about the analyses, the results and proposed decisions regarding the proposed MACT limits pursuant to CAA section 112(d)(2) and 112(d)(3) are presented in section IV.A of this preamble.

B. How did we estimate risks posed by the source category?

The EPA conducted risk assessments that provided estimates of the MIR posed by the HAP emissions for each source in the category, the HI for chronic exposures to HAP with the potential to cause noncancer health effects, and the hazard quotient (HQ) for acute exposures to HAP with the potential to cause noncancer health effects. The assessments also provided estimates of the distribution of cancer risks within the exposed populations, cancer incidence and an evaluation of the potential for adverse environmental effects for each source category. The risk assessments consisted of seven primary steps, as discussed below. The docket for this rulemaking contains the following document which provides more information on the risk assessment inputs and models: *Draft Residual Risk Assessment for the Primary Aluminum Reduction Plant Source Category.* The methods used to assess risks (as described in the seven primary steps below) are consistent with those peer-reviewed by a panel of the EPA's Science Advisory Board (SAB) in 2009 and described in their peer review report issued in 2010 [3]; they are also consistent with the key recommendations contained in that report.

1. Establishing the Nature and Magnitude of Actual Emissions and Identifying the Emissions Release Characteristics

As discussed in section II.B of this preamble, we used a dataset consisting of the estimated actual and allowable emissions as the basis for the risk assessment. In addition to the quality assurance (QA) of the emissions and associated parameters contained in the dataset, we also checked the coordinates of every facility in the dataset through visual observations using tools such as Google Earth and ArcView. Where coordinates were found to be incorrect, we identified and corrected them to the extent possible. We also performed QA of the emissions data and release characteristics to ensure there were no outliers.

2. Establishing the Relationship Between Actual Emissions and MACT-Allowable Emissions Levels

The available emissions data in the MACT dataset include estimates of the mass of HAP actually emitted during the specified annual time period. These ''actual'' emission levels are often lower than the emission levels that a facility might be allowed to emit and still comply with the MACT standards. The emissions level allowed to be emitted by the MACT standards is referred to as the ''MACT-allowable'' emissions level. This represents the highest emissions level that could be emitted by the facility without violating the MACT standards.

We discussed the use of both MACT-allowable and actual emissions in the final Coke Oven Batteries residual risk rule (70 FR 19998–19999, April 15, 2005) and in the proposed and final Hazardous Organic NESHAP residual risk rules (71 FR 34428, June 14, 2006, and 71 FR 76609, December 21, 2006, respectively). In those previous actions, we noted that assessing the risks at the MACT-allowable level is inherently reasonable since these risks reflect the maximum level sources could emit and still comply with national emission standards. But we also explained that it is reasonable to consider actual emissions, where such data are available, in both steps of the risk analysis, in accordance with the Benzene NESHAP. (54 FR 38044, September 14, 1989.)

Further explanation is provided in the document *Draft Development of the RTR Emissions Dataset for the Primary Aluminum Production Source Category* which is available in the docket for this proposed rulemaking.

3. Conducting Dispersion Modeling, Determining Inhalation Exposures and Estimating Individual and Population Inhalation Risks

Both long-term and short-term inhalation exposure concentrations and health risks from each facility in the source category addressed in this proposal were estimated using the Human Exposure Model (HEM) (Community and Sector HEM–3 version 1.1.0). The HEM–3 performs three primary risk assessment activities: (1) Conducting dispersion modeling to estimate the concentrations of HAP in ambient air, (2) estimating long-term

[3] U.S. EPA SAB. *Risk and Technology Review (RTR) Risk Assessment Methodologies: For Review by the EPA's Science Advisory Board with Case Studies—MACT I Petroleum Refining Sources and Portland Cement Manufacturing,* May 2010.

and short-term inhalation exposures to individuals residing within 50 km of the modeled sources and (3) estimating individual and population-level inhalation risks using the exposure estimates and quantitative dose-response information.

The dispersion model used by HEM–3 is AERMOD, which is one of the EPA's preferred models for assessing pollutant concentrations from industrial facilities.[4] To perform the dispersion modeling and to develop the preliminary risk estimates, HEM–3 draws on three data libraries. The first is a library of meteorological data, which is used for dispersion calculations. This library includes 1 year (1991) of hourly surface and upper air observations for more than 158 meteorological stations, selected to provide coverage of the United States and Puerto Rico. A second library of United States Census Bureau census block[5] internal point locations and populations provides the basis of human exposure calculations (Census, 2000). In addition, for each census block, the census library includes the elevation and controlling hill height, which are also used in dispersion calculations. A third library of pollutant unit risk factors and other health benchmarks is used to estimate health risks. These risk factors and health benchmarks are the latest values recommended by the EPA for HAP and other toxic air pollutants. These values are available at *http://www.epa.gov/ttn/atw/toxsource/summary.html* and are discussed in more detail later in this section.

In developing the risk assessment for chronic exposures, we used the estimated annual average ambient air concentration of each of the HAP emitted by each source for which we have emissions data in the source category. The air concentrations at each nearby census block centroid were used as a surrogate for the chronic inhalation exposure concentration for all the people who reside in that census block. We calculated the MIR for each facility as the cancer risk associated with a continuous lifetime (24 hours per day, 7 days per week, and 52 weeks per year for a 70-year period) exposure to the maximum concentration at the centroid of an inhabited census block. Individual cancer risks were calculated by multiplying the estimated lifetime exposure to the ambient concentration of each of the HAP (in micrograms per cubic meter) by its unit risk estimate (URE), which is an upper bound estimate of an individual's probability of contracting cancer over a lifetime of exposure to a concentration of 1 microgram of the pollutant per cubic meter of air. For residual risk assessments, we generally use URE values from the EPA's Integrated Risk Information System (IRIS). For carcinogenic pollutants without the EPA IRIS values, we look to other reputable sources of cancer dose-response values, often using California EPA (CalEPA) URE values, where available. In cases where new, scientifically credible dose-response values have been developed in a manner consistent with the EPA guidelines and have undergone a peer review process similar to that used by the EPA, we may use such dose-response values in place of, or in addition to, other values, if appropriate.

Polycyclic organic matter (POM), a carcinogenic HAP with a mutagenic mode of action, is emitted by the facilities in this source category.[6] For this compound group,[7] the age-dependent adjustment factors (ADAF) described in the EPA's *Supplemental Guidance for Assessing Susceptibility from Early-Life Exposure to Carcinogens*[8] were applied. This adjustment has the effect of increasing the estimated lifetime risks for POM by a factor of 1.6. In addition, although only a small fraction of the total POM emissions were not reported as individual compounds, the EPA expresses carcinogenic potency for compounds in this group in terms of benzo[a]pyrene equivalence, based on evidence that carcinogenic POM has the same mutagenic mechanism of action as benzo[a]pyrene. For this reason, the EPA's Science Policy Council[9] recommends applying the *Supplemental Guidance* to all carcinogenic polycyclic aromatic hydrocarbons for which risk estimates are based on relative potency. Accordingly, we have applied the ADAF to the benzo[a]pyrene equivalent portion of all POM mixtures.

Incremental individual lifetime cancer risks associated with emissions from the source category were estimated as the sum of the risks for each of the carcinogenic HAP (including those classified as carcinogenic to humans, likely to be carcinogenic to humans and suggestive evidence of carcinogenic potential[10]) emitted by the modeled source. Cancer incidence and the distribution of individual cancer risks for the population within 50 km of any source were also estimated for the source category as part of these assessments by summing individual risks. A distance of 50 km is consistent with both the analysis supporting the 1989 Benzene NESHAP (54 FR 38044) and the limitations of Gaussian dispersion models, including AERMOD.

To assess risk of noncancer health effects from chronic exposures, we summed the HQ for each of the HAP that affects a common target organ system to obtain the HI for that target organ system (or target organ-specific HI, TOSHI). The HQ for chronic exposures is the estimated chronic exposure divided by the chronic reference level, which is either the EPA reference concentration (RfC), defined as ''an estimate (with uncertainty spanning perhaps an order of magnitude) of a continuous inhalation exposure to the human population (including sensitive subgroups) that is likely to be without an appreciable risk of deleterious effects during a lifetime,'' or, in cases where an RfC from the EPA's IRIS database is not available, a value from the following prioritized sources: (1) The agency for Toxic Substances and Disease Registry Minimum Risk Level, which is defined as ''an estimate of daily human exposure to a substance that is likely to be without an appreciable risk of adverse effects (other than cancer) over a specified duration of exposure''; (2) the CalEPA Chronic Reference Exposure Level (REL), which is defined as ''the concentration level at or below which no adverse health effects are anticipated for a specified exposure duration;'' or

[4] U.S. EPA. Revision to the *Guideline on Air Quality Models: Adoption of a Preferred General Purpose (Flat and Complex Terrain) Dispersion Model and Other Revisions* (70 FR 68218, November 9, 2005).

[5] A census block is generally the smallest geographic area for which census statistics are tabulated.

[6] U.S. EPA. Performing risk assessments that include carcinogens described in the *Supplemental Guidance* as having a mutagenic mode of action. *Science Policy Council Cancer Guidelines Implementation Work Group Communication II:* Memo from W.H. Farland, dated October 4, 2005.

[7] See the *Risk Assessment for Source Categories* document available in the docket for a list of HAP with a mutagenic mode of action.

[8] U.S. EPA. *Supplemental Guidance for Assessing Early-Life Exposure to Carcinogens.* EPA/630/R–03/003F, 2005. *http://www.epa.gov/ttn/atw/childrens_supplement_final.pdf.*

[9] U.S. EPA. *Science Policy Council Cancer Guidelines Implementation Workgroup Communication II:* Memo from W.H. Farland, dated June 14, 2006.

[10] These classifications also coincide with the terms ''known carcinogen, probable carcinogen and possible carcinogen,'' respectively, which are the terms advocated in the EPA's previous *Guidelines for Carcinogen Risk Assessment,* published in 1986 (51 FR 33992, September 24, 1986). Summing the risks of these individual compounds to obtain the cumulative cancer risks is an approach that was recommended by the EPA's SAB in their 2002 peer review of EPA's NATA entitled, *NATA—Evaluating the National-scale Air Toxics Assessment 1996 Data—an SAB Advisory,* available at: *http://yosemite.epa.gov/sab/sabproduct.nsf/214C6E915BB04E14852570CA007A682C/$File/ecadv02001.pdf.*

(3) as noted above, a scientifically credible dose-response value that has been developed in a manner consistent with the EPA guidelines and has undergone a peer review process similar to that used by the EPA, in place of or in concert with other values.

Screening estimates of acute exposures and risks were also evaluated for each of the HAP at the point of highest off-site exposure for each facility (*i.e.,* not just the census block centroids), assuming that a person is located at this spot at a time when both the peak (hourly) emission rates from each emission point at the facility and worst-case dispersion conditions occur. The acute HQ is the estimated acute exposure divided by the acute dose-response value. In each case, acute HQ values were calculated using best available, short-term dose-response values. These acute dose-response values, which are described below, include the acute REL, acute exposure guideline levels (AEGL) and emergency response planning guidelines (ERPG) for 1-hour exposure durations. As discussed below, we used conservative assumptions for emission rates, meteorology and exposure location for our acute analysis.

As described in the CalEPA's *Air Toxics Hot Spots Program Risk Assessment Guidelines, Part I, The Determination of Acute Reference Exposure Levels for Airborne Toxicants,* an acute REL value (*http://www.oehha.ca.gov/air/pdf/acuterel.pdf*) is defined as ''the concentration level at or below which no adverse health effects are anticipated for a specified exposure duration.'' Acute REL values are based on the most sensitive, relevant, adverse health effect reported in the medical and toxicological literature. Acute REL values are designed to protect the most sensitive sub-populations (*e.g.,* asthmatics) by the inclusion of margins of safety. Since margins of safety are incorporated to address data gaps and uncertainties, exceeding the acute REL does not automatically indicate an adverse health impact.

AEGL values were derived in response to recommendations from the National Research Council (NRC). As described in *Standing Operating Procedures (SOP) of the National Advisory Committee on Acute Exposure Guideline Levels for Hazardous Substances* (*http://www.epa.gov/opptintr/aegl/pubs/sop.pdf*),[11] ''the NRC's previous name for acute exposure levels—community emergency exposure levels—was replaced by the term AEGL to reflect the broad application of these values to planning, response, and prevention in the community, the workplace, transportation, the military, and the remediation of Superfund sites.'' This document also states that AEGL values ''represent threshold exposure limits for the general public and are applicable to emergency exposures ranging from 10 minutes to eight hours.'' The document lays out the purpose and objectives of AEGL by stating (page 21) that ''the primary purpose of the AEGL program and the National Advisory Committee for Acute Exposure Guideline Levels for Hazardous Substances is to develop guideline levels for once-in-a-lifetime, short-term exposures to airborne concentrations of acutely toxic, high-priority chemicals.'' In detailing the intended application of AEGL values, the document states (page 31) that ''[i]t is anticipated that the AEGL values will be used for regulatory and nonregulatory purposes by U.S. Federal and state agencies and possibly the international community in conjunction with chemical emergency response, planning, and prevention programs. More specifically, the AEGL values will be used for conducting various risk assessments to aid in the development of emergency preparedness and prevention plans, as well as real-time emergency response actions, for accidental chemical releases at fixed facilities and from transport carriers.''

The AEGL–1 value is then specifically defined as ''the airborne concentration of a substance above which it is predicted that the general population, including susceptible individuals, could experience notable discomfort, irritation, or certain asymptomatic nonsensory effects. However, the effects are not disabling and are transient and reversible upon cessation of exposure.'' The document also notes (page 3) that, ''Airborne concentrations below AEGL–1 represent exposure levels that can produce mild and progressively increasing but transient and nondisabling odor, taste, and sensory irritation or certain asymptomatic, nonsensory effects.'' Similarly, the document defines AEGL–2 values as ''the airborne concentration (expressed as ppm or mg/m^3) of a substance above which it is predicted that the general population, including susceptible individuals, could experience irreversible or other serious, long-lasting adverse health effects or an impaired ability to escape.''

ERPG values are derived for use in emergency response, as described in the American Industrial Hygiene Association's document entitled, *Emergency Response Planning Guidelines (ERPG) Procedures and Responsibilities* (*http://www.aiha.org/1documents/committees/ERPSOPs2006.pdf*) which states that, ''Emergency Response Planning Guidelines were developed for emergency planning and are intended as health based guideline concentrations for single exposures to chemicals.''[12] The ERPG–1 value is defined as ''the maximum airborne concentration below which it is believed that nearly all individuals could be exposed for up to 1 hour without experiencing other than mild transient adverse health effects or without perceiving a clearly defined, objectionable odor.'' Similarly, the ERPG–2 value is defined as ''the maximum airborne concentration below which it is believed that nearly all individuals could be exposed for up to 1 hour without experiencing or developing irreversible or other serious health effects or symptoms which could impair an individual's ability to take protective action.''

As can be seen from the definitions above, the AEGL and ERPG values include the similarly defined severity levels 1 and 2. For many chemicals, a severity level 1 value AEGL or ERPG has not been developed; in these instances, higher severity level AEGL–2 or ERPG–2 values are compared to our modeled exposure levels to assess potential for acute concerns.

Acute REL values for 1-hour exposure durations are typically lower than their corresponding AEGL–1 and ERPG–1 values. Even though their definitions are slightly different, AEGL–1 values are often similar to the corresponding ERPG–1 values, and AEGL–2 values are often similar to ERPG–2 values. Maximum HQ values from our acute screening risk assessments typically result when basing them on the acute REL value for a particular pollutant. In cases where our maximum acute HQ value exceeds 1, we also report the HQ value based on the next highest acute dose-response value (usually the AEGL–1 and/or the ERPG–1 value).

To develop screening estimates of acute exposures, we developed estimates of maximum hourly emission rates by multiplying the average actual annual hourly emission rates by a factor to cover routinely variable emissions. Acute risk modeling is conducted under the assumption that peak emissions are ten times greater than long term average

[11] NAS, 2001. *Standing Operating Procedures for Developing Acute Exposure Levels for Hazardous Chemicals,* page 2.

[12] *ERP Committee Procedures and Responsibilities.* November 1, 2006. American Industrial Hygiene Association.

emissions, in the absence of information regarding the variability of the emissions.

With respect to routine variable emissions, primary aluminum potlines have a more consistent emissions profile than many other sources because these emissions actually reflect the average of the emissions from approximately 100 individual pots which operate in cycles that are not in phase with each other. Thus any variability associated with aluminum levels or electrode replacement for a particular pot may be damped out by the other pots at different stages. Alcoa provided to EPA a series of hourly hydrogen fluoride concentration data for two potlines at their Wenatchee facility. Approximately 2,075 consecutive hourly readings were provided based on Fourier Transform Infrared measurements at the roof vents. Alcoa found that the ratio of the maximum HAP emission rate to the average HAP emission rate for these two potlines were 2.7 and 5.6. Only one value out 2,075 consecutive hour samples (0.05 percent) was more than 5 times the average (*i.e.,* 99.95 percent of values were less than 5 times the average).

This dataset was then combined and subjected to two statistical analysis techniques: The upper prediction limit (UPL) calculated assuming a log-normal distribution after adjusting for temporal correction and extreme value theory. The average of the concentration values is 514 $\mu g/m^3$. The 99 percent UPL was calculated at 2,215 µg/m, which corresponds to 4.3 times the mean.

Using the extreme value theory, the 99.9 percentile estimate of the generalized extreme value distribution (corresponding to 1 observation in 1000) was 2,306 $\mu g/m^3$, which corresponds to 4.5 times the mean. Based on these data, a source category factor of 5 times the average hourly emissions rate, rather than the default factor of 10, was used in the acute screening assessment.

When worst-case HQ values from the initial acute screen step were less than 1, acute impacts were deemed negligible and no further analysis was performed. In cases where an acute HQ value from the screening step indicated the potential for acute risk, we further analyzed these values by considering additional site-specific data to develop a relatively more refined estimate of the potential for acute impacts of concern. This site-specific data includes the facility layout that was used to distinguish facility property from an area where the public could be exposed. These refinements are discussed in the *Draft Residual Risk Assessment for the Primary Aluminum Production Source Category* document, which is available in the docket for this proposed rulemaking.

Ideally, we would prefer to have continuous measurements over time to see how the emissions vary by each hour over an entire year. Having a frequency distribution of hourly emission rates over a year would allow us to perform a probabilistic analysis to estimate potential threshold exceedances and their frequency of occurrence. Such an evaluation could include a more complete statistical treatment of the key parameters and elements adopted in this screening analysis. However, we recognize that having this level of data is rare, hence our use of the multiplier approach.

To better characterize the potential health risks associated with estimated acute exposures to HAP, and in response to a key recommendation from the SAB's peer review of the EPA's RTR risk assessment methodologies,[13] we generally examine a wider range of available acute health metrics than we do for our chronic risk assessments. This is in response to the SAB's acknowledgement that there are generally more data gaps and inconsistencies in acute reference values than there are in chronic reference values. Comparisons of the estimated maximum off-site 1-hour exposure levels are not typically made to occupational levels for the purpose of characterizing public health risks in RTR assessments. This is because they are developed for working-age adults and are not generally considered protective for the general public. We note that occupational ceiling values are, for most chemicals, set at levels higher than a 1-hour AEGL–1.

4. Conducting Multi-Pathway Exposure and Risk Screening

The potential for significant human health risks due to exposures via routes other than inhalation (*i.e.,* multi-pathway exposures) and the potential for adverse environmental impacts were evaluated in a three-step process. In the first step, we determined whether any facilities emitted any PB–HAP (HAP known to be persistent and bio-accumulative in the environment). There are 14 PB–HAP compounds or compound classes identified for this screening in the EPA's *Air Toxics Risk Assessment Library* (available at *http://www.epa.gov/ttn/fera/risk_atra_vol1.html*). They are cadmium compounds, chlordane, chlorinated dibenzodioxins and furans, dichlorodiphenyldichloroethylene, heptachlor, hexachlorobenzene, hexachlorocyclohexane, lead compounds, mercury compounds, methoxychlor, polychlorinated biphenyls, POM, toxaphene and trifluralin.

Since POM is a PB–HAP and is emitted by all facilities in this source category, we proceeded to the second step of the evaluation to screen for potentially significant multi-pathway risks due to POM emissions. In this step, we determined whether the facility-specific emission rates of POM were large enough to create the potential for significant non-inhalation human or environmental risks under reasonable worst-case conditions. To facilitate this step, we have developed emission rate thresholds for each PB–HAP using a hypothetical worst-case screening exposure scenario developed for use in conjunction with the EPA's TRIM.FaTE model. The hypothetical screening scenario was subjected to a sensitivity analysis to ensure that its key design parameters were established such that environmental media concentrations were not underestimated (*i.e.,* to minimize the occurrence of false negatives or results that suggest that risks might be acceptable when, in fact, actual risks are high) and to also minimize the occurrence of false positives for human health endpoints. We call this application of the TRIM.FaTE model TRIM-Screen. The facility-specific emission rates of POM were compared to the TRIM-Screen emission threshold values for POM to assess the potential for significant human health risks or environmental risks via non-inhalation pathways.

5. Assessing Risks Considering Emissions Control Options

In addition to assessing baseline inhalation risks and screening for potential multi-pathway risks, where appropriate, we also estimated risks considering the potential emission reductions that would be achieved by the particular control options under consideration. In these cases, the expected emissions reductions were applied to the specific HAP and emissions sources in the source category dataset to develop corresponding estimates of risk reductions.

6. Conducting Other Risk-Related Analyses: Facility Wide Assessments

To put the source category risks in context, for our residual risk reviews, we also typically examine the risks from the entire ''facility,'' where the facility

[13] The SAB peer review of RTR Risk Assessment Methodologies is available at: *http://yosemite.epa.gov/sab/sabproduct.nsf/4AB3966E263D943A8525771F00668381/$File/EPA-SAB-10-007-unsigned.pdf.*

includes all HAP-emitting operations within a contiguous area and under common control. In these facility wide assessments we examine the HAP emissions not only from the source category of interest, but also emissions of HAP from all other emissions sources at the facility. Eleven of the primary aluminum reduction plants are collocated with secondary aluminum production operations. Based on a general knowledge of these facilities, we believe that the Primary Aluminum sources are the largest sources of HAP emissions at each of them. Moreover, we plan to do a facility wide assessment for each of these eleven facilities in an upcoming RTR rulemaking for the Secondary Aluminum source category. Therefore, we did not perform a facility wide risk assessment for these eleven facilities as part of today's action. For the four primary aluminum facilities that are not collocated with secondary aluminum production operations, the risk assessment performed as part of today's action is a facility wide risk assessment.

7. Considering Uncertainties in Risk Assessment

Uncertainty and the potential for bias are inherent in all risk assessments, including those performed for the Primary Aluminum source category addressed in this proposal. Although uncertainty exists, we believe that our approach, which used conservative tools and assumptions, ensures that our decisions are health-protective. A brief discussion of the uncertainties in the emissions datasets, dispersion modeling, inhalation exposure estimates and dose-response relationships follows below. A more thorough discussion of these uncertainties is included in the risk assessment documentation (referenced earlier) available in the docket for this action.

a. Uncertainties in the Emissions Datasets

Although the development of the MACT dataset involved QA/quality control processes, the accuracy of emissions values will vary depending on the source of the data, the degree to which data are incomplete or missing, the degree to which assumptions made to complete the datasets are inaccurate, errors in estimating emissions values and other factors. The emission estimates considered in this analysis generally are annual totals for certain years that do not reflect short-term fluctuations during the course of a year or variations from year to year.

The estimates of peak hourly emission rates for the acute effects screening assessment were based on a multiplication factor of 5 applied to the average annual hourly emission rate, which is intended to account for emission fluctuations due to normal facility operations.

b. Uncertainties in Dispersion Modeling

While the analysis employed the EPA's recommended regulatory dispersion model, AERMOD, we recognize that there is uncertainty in ambient concentration estimates associated with any model, including AERMOD. In circumstances where we had to choose between various model options, where possible, model options (*e.g.,* rural/urban, plume depletion, chemistry) were selected to provide an overestimate of ambient air concentrations of the HAP rather than underestimates. However, because of practicality and data limitation reasons, some factors (*e.g.,* meteorology, building downwash) have the potential in some situations to overestimate or underestimate ambient impacts. For example, meteorological data were taken from a single year (1991), and facility locations can be a significant distance from the sites where these data were taken. Despite these uncertainties, we believe that at off-site locations and census block centroids, the approach considered in the dispersion modeling analysis should generally yield overestimates of ambient HAP concentrations.

c. Uncertainties in Inhalation Exposure

The effects of human mobility on exposures were not included in the assessment. Specifically, short-term mobility and long-term mobility between census blocks in the modeling domain were not considered.[14] The assumption of not considering short or long-term population mobility does not bias the estimate of the theoretical MIR, nor does it affect the estimate of cancer incidence since the total population number remains the same. It does, however, affect the shape of the distribution of individual risks across the affected population, shifting it toward higher estimated individual risks at the upper end and reducing the number of people estimated to be at lower risks, thereby increasing the estimated number of people at specific risk levels.

In addition, the assessment predicted the chronic exposures at the centroid of each populated census block as surrogates for the exposure concentrations for all people living in that block. Using the census block centroid to predict chronic exposures tends to over-predict exposures for people in the census block who live further from the facility, and under-predict exposures for people in the census block who live closer to the facility. Thus, using the census block centroid to predict chronic exposures may lead to a potential understatement or overstatement of the true maximum impact, but it is an unbiased estimate of average risk and incidence.

The assessments evaluate the cancer inhalation risks associated with continuous pollutant exposures over a 70-year period, which is the assumed lifetime of an individual. In reality, both the length of time that modeled emissions sources at facilities actually operate (*i.e.,* more or less than 70 years) and the domestic growth or decline of the modeled industry (*i.e.,* the increase or decrease in the number or size of United States facilities) will influence the risks posed by a given source category. Depending on the characteristics of the industry, these factors will, in most cases, result in an overestimate both in individual risk levels and in the total estimated number of cancer cases. However, in rare cases, where a facility maintains or increases its emission levels beyond 70 years, residents live beyond 70 years at the same location, and the residents spend most of their days at that location, then the risks could potentially be underestimated. Annual cancer incidence estimates from exposures to emissions from these sources would not be affected by uncertainty in the length of time emissions sources operate.

The exposure estimates used in these analyses assume chronic exposures to ambient levels of pollutants. Because most people spend the majority of their time indoors, actual exposures may not be as high, depending on the characteristics of the pollutants modeled. For many of the HAP, indoor levels are roughly equivalent to ambient levels, but for very reactive pollutants or larger particles, these levels are typically lower. This factor has the potential to result in an overstatement of 25 to 30 percent of exposures.[15]

In addition to the uncertainties highlighted above, there are several other factors specific to the acute exposure assessment. The accuracy of an acute inhalation exposure assessment depends on the simultaneous

[14] Short-term mobility is movement from one micro-environment to another over the course of hours or days. Long-term mobility is movement from one residence to another over the course of a lifetime.

[15] U.S. EPA. *National-Scale Air Toxics Assessment for 1996.* (EPA 453/R–01–003; January 2001; page 85.)

occurrence of independent factors that may vary greatly, such as hourly emissions rates, meteorology, and human activity patterns. In this assessment, we assume that individuals remain for 1 hour at the point of maximum ambient concentration as determined by the co-occurrence of peak emissions and worst-case meteorological conditions. These assumptions would tend to overestimate actual exposures since it is unlikely that a person would be located at the point of maximum exposure during the time of worst-case impact.

d. Uncertainties in Dose-Response Relationships

There are uncertainties inherent in the development of the dose-response values used in our risk assessments for cancer effects from chronic exposures and noncancer effects from both chronic and acute exposures. Some uncertainties may be considered quantitatively, and others generally are expressed in qualitative terms. We note as a preface to this discussion a point on dose-response uncertainty that is brought out in the *EPA 2005 Cancer Guidelines;* namely, that ''the primary goal of the EPA actions is protection of human health; accordingly, as an agency policy, risk assessment procedures, including default options that are used in the absence of scientific data to the contrary, should be health protective.'' (*EPA 2005 Cancer Guidelines,* pages 1–7.) This is the approach followed here as summarized in the next several paragraphs. A complete detailed discussion of uncertainties and variability in dose-response relationships is given in the residual risk documentation, which is available in the docket for this action.

Cancer URE values used in our risk assessments are those that have been developed to generally provide an upper bound estimate of risk. That is, they represent a ''plausible upper limit to the true value of a quantity'' (although this is usually not a true statistical confidence limit).[16] In some circumstances, the true risk could be as low as zero; however, in other circumstances, the risk could also be greater.[17] When developing an upper bound estimate of risk and to provide risk values that do not underestimate risk, health-protective default approaches are generally used. To err on the side of ensuring adequate health-protection, the EPA typically uses the upper bound estimates rather than lower bound or central tendency estimates in our risk assessments, an approach that may have limitations for other uses (*e.g.,* priority-setting or expected benefits analysis).

Chronic noncancer reference (RfC and reference dose (RfD)) values represent chronic exposure levels that are intended to be health-protective levels. Specifically, these values provide an estimate (with uncertainty spanning perhaps an order of magnitude) of daily oral exposure (RfD) or of a continuous inhalation exposure (RfC) to the human population (including sensitive subgroups) that is likely to be without an appreciable risk of deleterious effects during a lifetime. To derive values that are intended to be ''without appreciable risk,'' the methodology relies upon an uncertainty factor (UF) approach (U.S. EPA, 1993, 1994) which includes consideration of both uncertainty and variability. When there are gaps in the available information, UF are applied to derive reference values that are intended to protect against appreciable risk of deleterious effects. The UF are commonly default values,[18] *e.g.,* factors of 10 or 3, used in the absence of compound-specific data; where data are available, UF may also be developed using compound-specific information. When data are limited, more assumptions are needed and more UF are used. Thus, there may be a greater tendency to overestimate risk in the sense that further study might support development of reference values that are higher (*i.e.,* less potent) because fewer default assumptions are needed. However, for some pollutants, it is possible that risks may be underestimated. While collectively termed ''uncertainty factor,'' these factors account for a number of different quantitative considerations when using observed animal (usually rodent) or human toxicity data in the development of the RfC. The UF are intended to account for: (1) Variation in susceptibility among the members of the human population (*i.e.,* inter-individual variability); (2) uncertainty in extrapolating from experimental animal data to humans (*i.e.,* interspecies differences); (3) uncertainty in extrapolating from data obtained in a study with less-than-lifetime exposure (*i.e.,* extrapolating from sub-chronic to chronic exposure); (4) uncertainty in extrapolating the observed data to obtain an estimate of the exposure associated with no adverse effects; and (5) uncertainty when the database is incomplete or there are problems with the applicability of available studies. Many of the UF used to account for variability and uncertainty in the development of acute reference values are quite similar to those developed for chronic durations, but they more often use individual UF values that may be less than 10. UF are applied based on chemical-specific or health effect-specific information (*e.g.,* simple irritation effects do not vary appreciably between human individuals, hence a value of 3 is typically used), or based on the purpose for the reference value (see the following paragraph). The UF applied in acute reference value derivation include: (1) Heterogeneity among humans; (2) uncertainty in extrapolating from animals to humans; (3) uncertainty in lowest observed adverse effect (exposure) level to no observed adverse effect (exposure) level adjustments; and (4) uncertainty in accounting for an incomplete database on toxic effects of potential concern. Additional adjustments are often applied to account for uncertainty in extrapolation from observations at one exposure duration (*e.g.,* 4 hours) to derive an acute reference value at another exposure duration (*e.g.,* 1 hour).

Not all acute reference values are developed for the same purpose, and care must be taken when interpreting the results of an acute assessment of human health effects relative to the reference value or values being exceeded. Where relevant to the estimated exposures, the lack of short-term dose-response values at different levels of severity should be factored into the risk characterization as potential uncertainties.

Although every effort is made to identify peer-reviewed reference values for cancer and noncancer effects for all pollutants emitted by the sources included in this assessment, some HAP

[16] IRIS glossary (*http://www.epa.gov/NCEA/iris/help_gloss.htm*).

[17] An exception to this is the URE for benzene, which is considered to cover a range of values, each end of which is considered to be equally plausible and which is based on maximum likelihood estimates.

[18] According to the NRC report, *Science and Judgment in Risk Assessment* (NRC, 1994) ''[Default] options are generic approaches, based on general scientific knowledge and policy judgment, that are applied to various elements of the risk assessment process when the correct scientific model is unknown or uncertain.'' The 1983 NRC report, *Risk Assessment in the Federal Government: Managing the Process,* defined default option as ''the option chosen on the basis of risk assessment policy that appears to be the best choice in the absence of data to the contrary'' (NRC, 1983a, p. 63). Therefore, default options are not rules that bind the Agency; rather, the Agency may depart from them in evaluating the risks posed by a specific substance when it believes this to be appropriate. In keeping with EPA's goal of protecting public health and the environment, default assumptions are used to ensure that risk to chemicals is not underestimated (although defaults are not intended to overtly overestimate risk). See EPA, 2004, *An Examination of EPA Risk Assessment Principles and Practices,* EPA/100/B–04/001 available at: *http://www.epa.gov/osa/pdfs/ratf-final.pdf.*

continue to have no reference values for cancer or chronic noncancer or acute effects. Since exposures to these pollutants cannot be included in a quantitative risk estimate, an understatement of risk for these pollutants at environmental exposure levels is possible. For a group of compounds that are either unspeciated or do not have reference values for every individual compound (*e.g.,* glycol ethers), we conservatively use the most protective reference value to estimate risk from individual compounds in the group of compounds.

Additionally, chronic reference values for several of the compounds included in this assessment are currently under the EPA IRIS review, and revised assessments may determine that these pollutants are more or less potent than the current value. We may re-evaluate residual risks for the final rulemaking if these reviews are completed prior to our taking final action for this source category and a dose-response metric changes enough to indicate that the risk assessment supporting this notice may significantly understate human health risk.

e. Uncertainties in the Multi-Pathway and Environmental Effects Screening Assessment

We generally assume that when exposure levels are not anticipated to adversely affect human health, they also are not anticipated to adversely affect the environment. For each source category, we generally rely on the site-specific levels of PB–HAP emissions to determine whether a full assessment of the multi-pathway and environmental effects is necessary. For this source category, we only performed a multi-pathway screening assessment for PB–HAP. Thus, it is important to note that potential PB–HAP multi-pathway risks are biased high.

C. How did we consider the risk results in making decisions for this proposal?

In evaluating and developing standards under section 112(f)(2), as discussed in section I.A of this preamble, we apply a two-step process to address residual risk. In the first step, the EPA determines whether risks are acceptable. This determination ''considers all health information, including risk estimation uncertainty, and includes a presumptive limit on maximum individual lifetime [cancer] risk (MIR)[19] of approximately 1-in-10 thousand [*i.e.,* 100-in-1 million]'' (54 FR 38045). In the second step of the process, the EPA sets the standard at a level that provides an ample margin of safety ''in consideration of all health information, including the number of persons at risk levels higher than approximately 1-in-1 million, as well as other relevant factors, including costs and economic impacts, technological feasibility, and other factors relevant to each particular decision'' (*Id.)*

In past residual risk actions, the EPA has presented and considered a number of human health risk metrics associated with emissions from the category under review, including: The MIR; the numbers of persons in various risk ranges; cancer incidence; the maximum non-cancer hazard index (HI); and the maximum acute non-cancer hazard (72 FR 25138, May 3, 2007; 71 FR 42724, July 27, 2006). In more recent proposals (75 FR 65068, October 21, 2010, and 75 FR 80220, December 21, 2010), the EPA also presented and considered additional measures of health information, such as estimates of the risks associated with the maximum level of emissions which might be allowed by the current MACT standards (see, *e.g.,* 75 FR 65068, October 21, 2010, and 75 FR 80220, December 21, 2010). The EPA also discussed and considered risk estimation uncertainties. The EPA is providing this same type of information in support of the proposed actions described in this **Federal Register** notice.

The agency is considering all available health information to inform our determinations of risk acceptability and ample margin of safety under CAA section 112(f). Specifically, as explained in the Benzene NESHAP, ''the first step judgment on acceptability cannot be reduced to any single factor'' and thus ''[t]he Administrator believes that the acceptability of risk under [previous] section 112 is best judged on the basis of a broad set of health risk measures and information'' (54 FR 38046). Similarly, with regard to making the ample margin of safety determination, as stated in the Benzene NESHAP ''[in the ample margin decision, the agency again considers all of the health risk and other health information considered in the first step. Beyond that information, additional factors relating to the appropriate level of control will also be considered, including cost and economic impacts of controls, technological feasibility, uncertainties, and any other relevant factors.'' *Id.*

The agency acknowledges that the Benzene NESHAP provides flexibility regarding what factors the EPA might consider in making determinations and how these factors might be weighed for each source category. In responding to comment on our policy under the Benzene NESHAP, the EPA explained that: ''The policy chosen by the Administrator permits consideration of multiple measures of health risk. Not only can the MIR figure be considered, but also incidence, the presence of non-cancer health effects, and the uncertainties of the risk estimates. In this way, the effect on the most exposed individuals can be reviewed as well as the impact on the general public. These factors can then be weighed in each individual case. This approach complies with the Vinyl Chloride mandate that the Administrator ascertain an acceptable level of risk to the public by employing [her] expertise to assess available data. It also complies with the Congressional intent behind the CAA, which did not exclude the use of any particular measure of public health risk from the EPA's consideration with respect to CAA section 112 regulations, and, thereby, implicitly permits consideration of any and all measures of health risk which the Administrator, in [her] judgment, believes are appropriate to determining what will 'protect the public health' '' (54 FR 38057).

Thus, the level of the MIR is only one factor to be weighed in determining acceptability of risks. The Benzene NESHAP explained that ''an MIR of approximately 1-in-10 thousand should ordinarily be the upper end of the range of acceptability. As risks increase above this benchmark, they become presumptively less acceptable under CAA section 112, and would be weighed with the other health risk measures and information in making an overall judgment on acceptability. Or, the agency may find, in a particular case, that a risk that includes MIR less than the presumptively acceptable level is unacceptable in the light of other health risk factors'' (*Id.* at 38045). Similarly, with regard to the ample margin of safety analysis, the EPA stated in the Benzene NESHAP that: ''* * * the EPA believes the relative weight of the many factors that can be considered in selecting an ample margin of safety can only be determined for each specific source category. This occurs mainly because technological and economic factors (along with the health-related factors) vary from source category to source category'' (*Id.* at 38061).

D. How did we perform the technology review?

Our technology review focused on the identification and evaluation of developments in practices, processes, and control technologies that have

[19] Although defined as ''maximum individual risk,'' MIR refers only to cancer risk. MIR, one metric for assessing cancer risk, is the estimated risk were an individual exposed to the maximum level of a pollutant for a lifetime.

occurred since the Primary Aluminum Reduction Plant NESHAP was promulgated.

Based on our analyses of the data and information collected from industry and the trade organization representing all facilities subject to the NESHAP, our general understanding of the industry, and other available information in the literature on potential controls for this industry, we identified no new developments in practices, processes, and control technologies. For the purpose of this exercise, we considered any of the following to be a ''development'':

• Any add-on control technology or other equipment that was not identified and considered during development of the 1997 Primary Aluminum Reduction Plant NESHAP.

• Any improvements in add-on control technology or other equipment (that were identified and considered during development of the 1997 Primary Aluminum Reduction Plant NESHAP) that could result in significant additional emissions reduction.

• Any work practice or operational procedure that was not identified or considered during development of the 1997 Primary Aluminum Reduction Plant NESHAP.

• Any process change or pollution prevention alternative that could be broadly applied to the industry and that was not identified or considered during development of the 1997 Primary Aluminum Reduction Plant NESHAP.

We also consulted the EPA's RACT/BACT/LAER Clearinghouse (RBLC) to identify potential technology advances. Control technologies classified as RACT (Reasonably Available Control Technology), BACT (Best Available Control Technology), or LAER (Lowest Achievable Emissions Rate) apply to stationary sources depending on whether the sources exist or new and on the size, age, and location of the facility. BACT and LAER (and sometimes RACT) are determined on a case-by-case basis, usually by State or local permitting agencies. The EPA established the RBLC to provide a central database of air pollution technology information (including technologies required in source-specific permits) to promote the sharing of information among permitting agencies and to aid in identifying future possible control technology options that might apply broadly to numerous sources within a category or apply only on a source-by-source basis. The RBLC contains over 5,000 air pollution control permit determinations that can help identify appropriate technologies to mitigate many air pollutant emissions streams. We searched this database to determine whether it contained any practices, processes, or control technologies for the types of processes covered by the Primary Aluminum Reduction Plant NESHAP. No such practices, processes, or control technologies were identified in this database.

E. What other issues are we addressing in this proposal?

In addition to the analyses described above, we also reviewed other aspects of the MACT standards for possible revision as appropriate and necessary. Based on this review we have identified aspects of the MACT standards that we believe need revision.

This includes proposing revisions to the startup, shutdown and malfunction (SSM) provisions of the MACT rule in order to ensure that they are consistent with a recent court decision in *Sierra Club* v. *EPA,* 551 F. 3d 1019 (DC Cir. 2008). In addition, we are proposing other changes to the rule which are not based on residual risk. These include establishing MACT floor-based standards for POM emissions from prebake potlines, COS emissions from all potlines, and design standards for control of POM emissions from existing pitch storage tanks. We are also proposing changes to the rule related to affirmative defense for exceedance of an emission limit during a malfunction. The analyses and proposed decisions for these actions are presented in section IV of this preamble.

IV. Analytical Results and Proposed Decisions

This section of the preamble provides the results of our RTR for the Primary Aluminum Reduction Plant source category and our proposed decisions concerning changes to the Primary Aluminum Reduction Plant NESHAP.

A. What are the results of our analyses and proposed decisions regarding unregulated emissions sources?

The current MACT rule has no standards for POM from prebake potlines. Prebake facilities have significantly lower POM emissions compared to Soderberg facilities. Nevertheless, these emissions are not negligible. We are proposing to establish MACT emission limits for POM from prebake potlines in this action. The typical controls used on these prebake potlines to limit the primary (*i.e.,* stack) emissions, and which reflect the MACT floor level of control, are dry alumina scrubbers (with a baghouse). We calculated MACT floor limits for these potlines based on the limited available data. We also considered possible controls beyond the MACT floor, such as wet roof scrubbers, but we estimated that these beyond-the-floor controls would only achieve approximately an additional 30 percent reduction in secondary (*i.e.,* roof vent) emissions and that the costs of these additional controls would be quite high (*e.g.,* well over $100 million in capital costs for the industry). We estimate that the cost of controlling POM from prebake potroom secondary emissions would be approximately $800,000 per ton. Therefore, we are proposing emission limits for POM from prebake potlines, after considering variability in emissions using a 99% upper prediction level approach, based on the MACT floor. We are proposing a POM emission limit for new prebake potlines equal to the lowest limit for existing prebake potlines (developed from data obtained from the best performing sources (center-worked prebake one) facilities). More details about the data and analyses used to derive the MACT limits, and explanation of the beyond-the-floor analyses, are provided in the technical document *Draft MACT Floor Analysis for the Primary Aluminum Production Source Category* which is available in the docket for this proposed action. The proposed limits for prebake potlines are shown in Table 5.

TABLE 5—PROPOSED EMISSION LIMITS FOR NEW AND EXISTING PREBAKE POTLINES

Source	Pollutant	Emission limit
Existing Prebake:		
CWPB1 potlines	POM	0.31 kg/Mg (0.62 lb/ton) of aluminum produced.
CWPB2 potlines	POM	0.65 kg/Mg (1.3 lb/ton) of aluminum produced.
CWPB3 potlines	POM	0.63 kg/Mg (1.26 lb/ton) of aluminum produced.
SWPB potlines:	POM	0.33 kg/Mg (0.65 lb/ton) of aluminum produced.
New Prebake:		

TABLE 5—PROPOSED EMISSION LIMITS FOR NEW AND EXISTING PREBAKE POTLINES—Continued

Source	Pollutant	Emission limit
All prebake potline types	POM	0.31 kg/Mg (0.62 lb/ton) of aluminum produced.

As mentioned above, the current MACT rule has no standards for COS. It is very difficult and quite expensive to measure total COS emissions because the concentrations of secondary emissions are below the detection limit of the EPA reference method. However, stack tests are feasible and have been completed. Moreover, emissions studies have been completed using an experimental test method to estimate COS emissions from these secondary emissions sources (Determination of COS to SO_2 Ratio in Smelting Process Emissions at the Alcoa Warrick Operations, 4 August 1995). We have been able to use the experimental test results along with stack test data and data on sulfur content of input materials to estimate total COS emissions. We have determined that there is a direct relationship between the COS emissions and the sulfur content of raw materials. The results of these studies indicate that an estimated 8 percent of the sulfur present in the coke (used to make anodes) is converted to COS emissions.

Given the technical difficulties of measuring secondary COS emissions directly, and given that there is a direct relationship between sulfur content of input materials and COS emissions, we developed a mass balance equation for calculating COS emissions. Using this approach, we developed a proposed MACT standard for COS using the mass balance equation. The equation derives monthly COS emission rates based on anode coke sulfur content, anode consumption and aluminum production, as follows:

$$E_{COS} = [\,K\,] \times \left[\frac{Y}{Z}\right] \times [\,\%S\,]$$

Where:

E_{COS} = the facility wide emission rate of COS during the calendar month in pounds per ton of aluminum produced;

K = factor accounting for molecular weights and conversion of sulfur to carbonyl sulfide = 234;

Y = the tons of anode used at the facility during the calendar month;

Z = the tons of aluminum produced at the facility during the calendar month; and

%S = the weighted average sulfur content of the anode coke utilized in the production of aluminum during the calendar month (*e.g.,* if the weighted average sulfur content of the anode coke utilized during the calendar month was 2.5%, then %S = 0.025).

Using this method, we are proposing a MACT floor limit for COS for existing facilities at 3.9 pounds of COS per ton of aluminum produced (lb/ton Al), based on data obtained from the five facilities with the lowest calculated COS emissions and adjustment to account for variability using a 99% upper prediction limit approach. With regard to costs for this standard, we estimate that all facilities will be able to meet this limit with minimal additional costs (*e.g.,* calculating COS emissions and the associated monitoring, recordkeeping and reporting). With regard to new sources, the MACT floor limit for COS for new facilities is proposed at 3.1 lb COS/ton Al, based on data obtained from the facility with the lowest calculated COS emissions and adjustment to account for variability.

We also considered beyond-the-floor options for COS. For example, we assessed the feasibility and costs of proposing that all existing facilities meet a limit of 3.1 lb COS/ton Al. We estimate that a limit at this level would impact 5 facilities, result in 220 tpy reductions of COS emissions, at a total cost of $13,000,000 (or $2.6 million per facility) per year. However, there are significant uncertainties regarding the future availability and costs of the associated lower-sulfur anode coke. The Primary Aluminum industry obtains most of their coke as a by-product from the gas and oil refinery industry. It is our understanding that currently available coke with low sulfur contents could be very hard to obtain in the future and will likely be much more expensive. This situation is expected due to the following: (1) The type of crude oil input at refineries in the future is generally expected to be heavier and, therefore, less likely to result in ''anode grade coke'' that has the structure necessary for use in anode production; (2) the type of crude oil input at refineries in the future is generally expected to have higher sulfur content because the per barrel cost of heavy sour (*i.e.,* high-sulfur) crude oil is so much lower than light sweet (*i.e.,* low-sulfur) crude oil; (3) refineries initially designed to process light sweet crude oil are being converted to process heavy sour crude oil at a rapid pace worldwide due to refinery economics; (4) refineries are designed to desulfurize the product streams (gasoline, diesel, *etc.*), not the crude oil input, and the sulfur in the crude oil tends to concentrate in the petroleum coke (*i.e.,* the ''bottoms''); (5) unwillingness of refineries to preferentially process light sweet crude oil in place of heavy sour crude oil due to unfavorable economics (*i.e.,* refineries will not modify their operations to change the quality of a by-product such as petroleum coke); and (6) the lack of leverage that primary aluminum companies have over the quality of this by-product, as coke is a very low profit item for refineries and anode grade coke represents less than 20% of all the petroleum coke produced worldwide. Thus, based on future availability of low-sulfur coke, the true long term costs could exceed the present estimated cost of $13,000,000 per year.

We also evaluated the feasibility and costs of another beyond-the-floor option of requiring that all existing facilities meet a limit of 3.5 lb COS/ton Al. We estimate that a limit at this level would impact 2 facilities, result in 52 tpy reductions of COS emissions, at a total cost of $2,000,000 (or $1 million per facility) per year. Once again, these estimated costs could be significant underestimates of the true long-term costs. The uncertainties and concerns about the future availability and costs of the required low-sulfur content coke that are described above for the 3.1 lb COS/ton Al option are also a concern for this 3.5 lb COS/ton Al option.

We also considered control options including incineration and scrubbing of COS. The cost of incineration would be quite high due to the volume (typically millions of cubic feet per minute) and the relatively low temperature of the exhaust stream (typically less than 200 °F). Incineration also involves the disadvantage of the generation of sulfur dioxide and other pollutants. Similarly, the cost of scrubbers would be quite high and involve the disadvantage of generating a waste sludge stream.

Given the analyses and conclusions described above, we are proposing a MACT standard for COS for existing facilities based on the MACT floor analysis, which is a limit of 3.9 lb COS/ton Al. With regard to new sources, we are proposing a MACT standard for COS based on the MACT floor analysis, which is a limit of 3.1 lb COS/ton Al.

With regard to POM emissions from pitch storage tanks, the 1997 NESHAP included MACT standards for new pitch storage tanks, which required a 95 percent reduction in POM emissions. However, the 1997 NESHAP had no limits for existing storage tanks. We are proposing in today's action that existing tanks will be subject to the same standard (*i.e.,* minimum of 95 percent reduction of POM emissions). At least three facilities are currently achieving this level of control. We estimate that eight facilities would be affected by this standard and would need to add controls, at a total annualized cost of about $21,000 per facility. We also estimate that this would achieve 1.6 tons reductions in POM emissions per year.

A non-contact single stage, refrigerated, water cooled condenser system was considered as a beyond the floor option for POM from pitch storage tanks. However, we believe the associated cost (estimated at $184,000 per year, per facility) is not justified by the incremental control of HAP (estimated at 0.081 tons per year for the industry).

B. What are the results of the risk assessments?

For the Primary Aluminum source category, we conducted an inhalation risk assessment for all HAP emitted. We also conducted multi-pathway screening analyses for PB–HAP emitted (*i.e.,* POM). Results of the risk assessment are presented briefly below and in more detail in the residual risk documentation referenced in section III of this preamble, which is available in the docket for this action.

Table 6 of this preamble provides an overall summary of the results of the inhalation risk assessment.

TABLE 6—PRIMARY ALUMINUM REDUCTION PLANT INHALATION RISK ASSESSMENT RESULTS

Maximum individual cancer risk (in 1 million) [1]		Estimated population at increased risk of cancer ≥1-in-1 million	Estimated annual cancer incidence (cases per year)	Maximum chronic non-cancer TOSHI [2]		Worst-case maximum refined screening acute non-cancer HQ [3]
Based on actual emissions level	Based on allowable emissions level [4] [5]			Based on actual emissions level	Based on allowable emissions level	
30	100	41,000	0.005	0.4	0.6	HQ_{REL} 10 (HF) HQ_{AEGL-1} 4 (HF)

[1] Estimated maximum individual excess lifetime cancer risk due to HAP emissions from the source category.
[2] Maximum TOSHI. The target organ with the highest TOSHI for the primary aluminum source category is the skeletal system.
[3] See section III.B of this preamble for explanations of acute dose-response values.
[4] The facility with the highest MIR based on allowable emissions is the Columbia Falls facility. Notably, this facility has not operated in approximately 2 years and therefore, the EPA did not generate risk estimates (*i.e.,* MIR, TOSHI, and acute screening values) based on *actual* emissions for this facility.
[5] The highest MIR based on allowable emissions from an operating facility is estimated to be up to 50 in one million, for the operating Soderberg facility.

The results of the chronic inhalation cancer risk assessment indicate that, based on estimates of current actual emissions, the maximum individual lifetime cancer risk (MIR) could be up to 30 in one million, with emissions of POM [20] primarily from potline roof vents (secondary emissions) and anode bake furnaces driving these risks. The highest MIR of up to 30 in one million based on actual emissions is due to POM emissions from the one currently operating Soderberg facility. The highest MIR due to actual emissions from prebake facilities was estimated to be up to 20 in one million; the next highest MIR for an operating prebake facility is estimated to be up to 6 in one million. The total estimated cancer incidence from this source category based on actual emission levels is 0.005 excess cancer cases per year or one case in every 200 years, with emissions of POM contributing approximately 99 percent to this cancer incidence. In addition, we note that approximately 41,000 people are estimated to have cancer risks greater than 1 in one million, and approximately 900 people are estimated to have risks greater than 10 in one million. When considering the risks associated with MACT-allowable emissions, the MIR could be up to 100 in one million if the Columbia Falls facility (a Soderberg type facility) were to resume its primary aluminum operations (see note 4 on Table 6). The MIR based on allowable emissions from the one currently operating Soderberg facility (Massena East facility) was up to 50 in one million. The highest MIR based on allowable emissions from any of the prebake facilities was up to 30 in one million.

The maximum modeled chronic non-cancer TOSHI value is 0.4 based on actual emissions, driven primarily by HF emissions. When considering MACT allowable emissions, the maximum chronic non-cancer TOSHI value could be up to 0.6. For this source category, there were two HAP that had relevant acute health effect screening values: Carbonyl sulfide (COS) and hydrofluoric acid (HF). Acute health effect screening is performed using actual emissions data. The Columbia Falls facility has not operated in about 2 years and has not operated at capacity since about 1999. Therefore, suitable actual emission data was not available for this facility and its acute health effects are not included in this discussion. Further, the carbon-only prebake anode production facility does not emit COS or HF. Therefore, this discussion addresses the acute health effects of only the 13 remaining facilities subject to this NESHAP. With respect to COS, we did not find any potential for acute health concerns for the 13 facilities based on their actual emissions. However, HF emissions did not screen out with respect to potential acute health effects. The highest refined worst-case HQ for HF based on a REL is 10, based on an AEGL-1 is 4, and based on an ERPG-1 is 2. Moreover, 8 of the 13 facilities show the potential for worst-case acute HQ values greater than 1 based on the REL, 4 of the 13 facilities show the potential for worst-case acute HQ values greater than 1 based on the AEGL-1 and 4 of the 13 facilities show the potential for worst-case acute HQ values greater than or equal to 1 based on the ERPG-1.[21] Nevertheless, it is

[20] Most all POM emitted by this source category are PAHs.

[21] Individual facility acute HQ values for all facilities can be found in Appendix 5, Table 4, of the risk assessment document that is included in the docket for this proposed rulemaking. Acute HQ

important to note that all the worst-case acute HQs are based on conservative assumptions (*e.g.,* worst-case meteorology coinciding with peak short-term one-hour emissions from each emission point, with a person located at the point of maximum concentration during that hour).

In addition to the analyses presented above, to screen for potential multi-pathway effects from emissions of POM, we compared the estimated actual PAH emission rates from 14 facilities in this source category to the multi-pathway screening rate for PAHs described in section III.B. Results of this worst-case screen estimate that actual PAH emissions from all 14 facilities exceed the PAH multi-pathway screening rate. With respect to these exceedances of the worst-case multi-pathway screening rate for PAHs, we note that this only indicates the potential for multi-pathway-related cancer risks of concern from PAHs. Moreover, due to data limitations, we were not able to refine our multi-pathway analysis beyond the screening assessment. Thus, we note that these results are biased high for purposes of screening and are subject to significant uncertainties. As such, they do not necessarily indicate that multi-pathway risks from POM are significant, only that we cannot rule out the possibility that they might be significant.

C. What are our proposed decisions regarding risk acceptability and ample margin of safety?

1. Risk Acceptability

As noted in section III.C of this preamble, we weigh all health risk factors in our risk acceptability determination, including the MIR, the numbers of persons in various risk ranges, cancer incidence, the maximum noncancer HI, the maximum acute noncancer hazard, the extent of noncancer risks, the potential for adverse environmental effects, distribution of risks in the exposed population, and risk estimation uncertainties (54 FR 38044, September 14, 1989).

For the Primary Aluminum Reduction source category, the risk analysis we performed indicates that the cancer risk to the individual most exposed due to actual emissions is well below 100 in one million, and the cancer incidence is low (1 case in every 200 years). The potential risks due to allowable emissions are higher with an estimated MIR of up to 100 in one million which is the presumptive upper limit of acceptable risk.

With regard to noncancer risks, the analysis indicates that chronic noncancer health risks are negligible due to both actual and allowable emissions. The assessment of potential acute noncancer effects (described in the previous section) suggests that there may be potential for some acute risks due to HF emissions with worst-case HQs up to 10 (based on the REL). In characterizing the potential for acute noncancer impacts of concern, it is important to remember the upward bias of these worst-case exposure estimates and to consider the results along with the rather large uncertainties related to the emissions estimates and screening methodology.

With regard to multi-pathway exposures and risks, results of the screening analysis indicate that actual PAH emissions from all the facilities exceed the worst-case multi-pathway screening rate for PAHs, indicating the potential for possible multi-pathway-related cancer risks of concern from PAHs. We note that these screening results do not necessarily indicate that significant multi-pathway risks actually exist at primary aluminum facilities, only that we cannot rule them out as a possibility.

Overall, in determining whether risk is acceptable, we considered all the available health risk information, as described above. In this case, because the MIRs due to actual emissions are well below 100-in-1 million risk, and since the one facility that could pose possible risks due to allowable emissions of up to 100 in one million is not operating, and because a number of other factors indicate relatively low risk concern (*e.g.,* low cancer incidence and low potential for chronic noncancer risks), and given the conservative, worst-case screening level characteristics of the acute and multi-pathway assessments, and various uncertainties, we are proposing to determine that the risks due to HAP emissions from this source category are acceptable.

2. Ample Margin of Safety Analysis

We next considered whether the existing MACT standard provides an ample margin of safety (AMOS). Under the ample margin of safety analysis, we evaluate the cost and feasibility of available control technologies and other measures (including the controls, measures and costs reviewed under the technology review) that could be applied in this source category to further reduce the risks (or potential risks) due to emissions of HAP identified in our risk assessment, along with all of the health risks and other health information considered in the risk acceptability determination described above.

First, we evaluated the feasibility to reduce the potential risks due to allowable POM emissions from Soderberg facilities. As described above, the potential cancer MIR from Soderberg facilities is estimated to be up to 100 in one million due to allowable emissions. These risks are driven by POM emissions from a Soderberg facility within the vertical stud Soderberg (VSS2) subcategory. The current emissions limit (from the 2005 NESHAP amendments) for POM from potlines in this VSS2 subcategory is 2.85 kg of POM per Mg of Aluminum produced (2.85 kg/Mg, or 5.7 lbs/ton). Based on site-specific emissions data submitted by the company in early 2008 for this facility, the estimated actual emissions from this facility were about 2 lbs/ton during the most recent years of operation (see Document EPA–HQ–OAR–2002–0031–0029, which is available in the docket for this rulemaking).

After considering variability in emissions, which is appropriate for establishing MACT limits (as described in section III.A above), we calculated, using a 99% upper prediction level approach, that an emissions limit of 3.8 lbs/ton could be achieved by this facility without any additional controls and therefore no additional costs. This would result in a reduction of approximately 33 percent for the allowable emissions from VSS2 potlines, and would reduce the potential cancer MIR due to allowable emissions to about 70 in one million. We also evaluated potential controls to reduce these risks further (such as requiring wet roof scrubbers). We determined that these controls would be quite costly (approximately $4 million per ton of organic HAP), with estimated capital costs of about $40 million for this facility, and would only achieve about an additional 9.6 tons of HAP per year (30 percent) reduction in POM emissions. These controls and costs are described in more detail below.

We also evaluated the POM emissions from the one operating Soderberg facility (which is in the HSS subcategory) as part of our AMOS analyses. Based on the risk assessment, we estimated that this facility posed a cancer MIR of up to 30 in one million based on actual emissions and an MIR of up to 50 in one million based on allowable emissions. The current

values exceeding a value of 1 based on the REL were as follows: 10, 10, 9, 9, 5, 3, 2 and 2. Acute HQ values greater than a value of 1 based on the AEGL-1 were as follows: 4, 4, 3 and 3. Acute HQ values greater than or equal to a value of 1 based on the ERPG-1 were as follows: 2, 2, 1 and 1.

emissions limit for POM from potlines for this HSS subcategory is 2.35 kg/Mg (or 4.7 lbs/ton). Based on site specific emissions data for this facility, the actual emissions from this facility are estimated to be about 1.5 lbs/ton. After considering variability in emissions, we determined that an emissions limit of 3.0 lbs/ton could be achieved by this facility with no additional controls and, therefore, no additional costs. This would result in a reduction of approximately 36 percent for the allowable emissions from these HSS potlines, and would reduce the potential cancer MIR due to allowable emissions from this facility to about 30 in one million.

We identified wet roof scrubbers as one possible control technology that could be applied to further reduce allowable and actual emissions of POM from potlines, to reduce the cancer risks due to actual and allowable POM emissions, and to reduce the potential risks due to multi-pathway exposures to POM. One facility in the source category currently has this type of scrubber. These controls can also be used to reduce HF emissions and, thus, would reduce the potential for acute noncancer risks. However, the costs for these controls are high. For example, we estimate that the capital costs for the typical facility would be more than $40 million, with annualized costs of $13 million. Industry wide this would result in total capital costs of over $400 million, with estimated annualized costs of over $150 million. These controls would achieve reductions of secondary emissions of about 30 to 50 percent. Given the high costs (estimated at approximately $140,000 per ton of HAP) and relatively low emissions and risk reductions, we propose that it is not appropriate or necessary to establish these additional controls under 112(f)(2). Therefore, based our AMOS analysis, we are proposing under section 112(f)(2) of the CAA to lower the POM emissions limit for VSS2 potlines from 5.7 to 3.8 lbs/ton and to lower the POM limit for HSS potlines from 4.7 to 3.0 lbs/ton. Pursuant to CAA section 112(f)(4), we are proposing that these changes apply 90 days after the effective date of this rulemaking. We did not identify any other cost-effective controls to further reduce HAP emissions for this source category under the AMOS analyses.

In accordance with the approach established in the Benzene NESHAP, the EPA weighed all health risk measures and information considered in the risk acceptability determination, along with the costs and economic impacts of emissions controls, technological feasibility, uncertainties and other relevant factors in proposing our ample margin of safety determination. Considering the health risk information and the costs of the options identified, we propose that the existing MACT standards, along with the proposed lower POM limits for potlines at Soderberg facilities (VSS2 and HSS subcategories) described above, will provide an ample margin of safety to protect public health.

Pursuant to CAA section 112(f)(4), we are proposing that these changes (*i.e.,* lower emission limits for potlines at Soderberg facilities) apply 90 days after the effective date of this rulemaking. See CAA section 112(f)(4)(A).

Nevertheless, we solicit comment and information on the feasibility, costs and appropriateness of any additional controls or options to further reduce the potential risks due to emissions of HAP, especially POM and HF.

D. What are the results and proposed decisions based on our technology review?

As described above, dry alumina scrubbers (with baghouses) are the typical controls used to minimize primary emissions of HF and POM from the potlines. However, some facilities use wet scrubbers and ESPs to control these emissions. The MACT control technology typically used for anode bake furnaces is also a dry alumina scrubber, and a capture system vented to a dry coke scrubber is used for control of paste production plants. These facilities further reduce HAP emissions from anode bake furnaces by implementation of certain practices during periods of startup (*e.g.,* development of an anode bake furnace startup schedule, operation of the associated control system(s) within normal parametric limits prior to the startup of the anode bake furnace). To further control potline secondary emissions, one facility has wet roof scrubbers to get additional control of HF and POM. As described in the AMOS section above, it would be quite costly to require wet roof scrubbers on other facilities.

Overall, based on our technology review, we determined that there have been no developments in practices, processes, and control technologies that would be considered feasible and cost-effective to apply to this source category since promulgation of the Primary Aluminum Reduction Plant NESHAP, other than the anode bake furnace startup practices mentioned above. We propose to modify the MACT requirements for anode bake furnaces to include implementation of the startup practices mentioned above. Further, based on an analysis of recent emissions data, we believe that the practices, processes and control technologies currently in use by this source category allow for a reduction in the POM emission limits for Soderberg potlines (please refer to the ample margin of safety analysis in section IV.C.2 of this preamble).

Additional details regarding these analyses can be found in the following technical document for this action which is available in the docket: *Draft Technology Review for the Primary Aluminum Reduction Plant Source Category.*

E. What other actions are we proposing?

1. Startup, Shutdown and Malfunctions

The United States Court of Appeals for the District of Columbia Circuit vacated portions of two provisions in the EPA's CAA section 112 regulations governing the emissions of HAP during periods of startup, shutdown and malfunction (SSM). *Sierra Club* v. *EPA,* 551 F.3d 1019 (DC Cir. 2008), *cert. denied,* 130 S. Ct. 1735 (U.S. 2010). Specifically, the Court vacated the SSM exemption contained in 40 CFR 63.6(f)(1) and 40 CFR 63.6(h)(1), that are part of a regulation, commonly referred to as the ''General Provisions Rule,'' that the EPA promulgated under CAA section 112. When incorporated into CAA section 112(d) regulations for specific source categories, these two provisions exempt sources from the requirement to comply with the otherwise applicable CAA section 112(d) emissions standard during periods of SSM.

We are proposing the elimination of the SSM exemption in this rule. Consistent with *Sierra Club* v. *EPA,* the EPA is proposing standards in this rule that apply at all times. We are also proposing several revisions to Appendix A to subpart LL of part 63 (the General Provisions Applicability table). For example, we are proposing to eliminate the incorporation of the General Provisions' requirement that the source develop an SSM plan. We also are proposing to eliminate or revise certain recordkeeping and reporting requirements related to the SSM exemption. The EPA has attempted to ensure that we have not included in the proposed regulatory language any provisions that are inappropriate, unnecessary, or redundant in the absence of the SSM exemption. We are specifically seeking comment on whether there are any such provisions that we have inadvertently incorporated or overlooked.

In proposing the standards in this rule, the EPA has taken into account startup and shutdown periods and, for the reasons explained below, the EPA is proposing in some cases different standards for startup periods.

The 1997 MACT rule allowed for periods of up to six months for startup of existing potlines that had been previously shutdown. These long startup periods for potlines are recognized as part of the normal operations during which emissions testing is not feasible. The current MACT emission limits are not applicable during these startup periods. Thus, we are proposing MACT standards for these periods in today's action. Given that it is economically and technically infeasible to measure emissions during these startup periods, we are proposing detailed work practice standards that will minimize HAP emissions and ensure proper operation of the processes and control equipment during startup periods. The proposed work practices include bringing the potline scrubbers and exhaust fans on line prior to energizing the first cell being restarted, ensuring that the primary capture and control system is operating at all times during startup, and keeping pots covered during startup as much as practicable to include, but not limited to, minimizing the removal of covers or panels of the pots on which work is being performed. Moreover, facilities must inspect potlines daily during startup and perform additional work practices, including resealing pot crust as often and as soon as practicable, reducing cell temperatures to as low as practicable, and adjusting pot parameters to their optimum levels to include, but not limited to, the following parameters: Alumina addition rate, exhaust air flow, cell voltage, feeding level, anode current, and liquid and solid bath levels.

The 1997 MACT rule allowed for startup periods for new or reconstructed anode bake furnaces and pitch storage tanks and for anode bake furnaces that had been previously shutdown. Based on information received from industry, we believe that these sources can comply with their MACT standards during startup periods. Therefore, we are removing the provisions for startup of anode bake furnaces and pitch storage tanks. However, we have added startup practices for anode bake furnace startup periods to help ensure that the standards will be met. These startup practices will minimize HAP emissions and ensure proper operation of the processes and control equipment during startup periods (please refer to the discussion of the technology review in section IV.D of this preamble).

Shutdown emissions are not expected to be different from those during normal operation; therefore, no separate standard or work practice is warranted. We propose that the numerical MACT limits described in previous sections of this preamble (established for normal operations) will apply during shutdown periods. We also propose that the MACT limits for all other affected units besides potlines (bake furnaces, pitch tanks, and paste production plants) apply at all times, including during startups and shutdowns.

Information on periods of startup and shutdown received from the industry indicate that emissions during startup (except for potlines) and shutdown periods are no greater than emissions during normal operations. Therefore, the continued operation of the existing control devices and emission capture systems will, in conjunction with the detailed proposed startup practices and work practices described above, be consistent with maximum achievable control technology and will be adequate, along with all the other standards described above, to ensure that risks will be acceptable and the rule will provide an ample margin of safety.

Periods of startup, normal operations, and shutdown are all predictable and routine aspects of a source's operations. However, by contrast, malfunction is defined as a ''sudden, infrequent, and not reasonably preventable failure of air pollution control and monitoring equipment, process equipment or a process to operate in a normal or usual manner * * *'' (40 CFR 63.2). The EPA has determined that CAA section 112 does not require that emissions that occur during periods of malfunction be factored into development of CAA section 112 standards. Under CAA section 112, emissions standards for new sources must be no less stringent than the level ''achieved'' by the best controlled similar source and for existing sources generally must be no less stringent than the average emissions limitation ''achieved'' by the best performing 12 percent of sources in the category. There is nothing in CAA section 112 that directs the agency to consider malfunctions in determining the level ''achieved'' by the best performing or best controlled sources when setting emissions standards. Moreover, while the EPA accounts for variability in setting emissions standards consistent with the CAA section 112 case law, nothing in that case law requires the agency to consider malfunctions as part of that analysis. Section 112 of the CAA uses the concept of ''best controlled'' and ''best performing'' unit in defining the level of stringency that CAA section 112 performance standards must meet. Applying the concept of ''best controlled'' or ''best performing'' to a unit that is malfunctioning presents significant difficulties, as malfunctions are sudden and unexpected events.

Further, accounting for malfunctions would be difficult, if not impossible, given the myriad different types of malfunctions that can occur across all sources in the category and given the difficulties associated with predicting or accounting for the frequency, degree, and duration of various malfunctions that might occur. As such, the performance of units that are malfunctioning is not ''reasonably'' foreseeable. See, *e.g., Sierra Club* v. *EPA,* 167 F.3d 658, 662 (DC Cir. 1999) (EPA typically has wide latitude in determining the extent of data-gathering necessary to solve a problem. We generally defer to an agency's decision to proceed on the basis of imperfect scientific information, rather than to ''invest the resources to conduct the perfect study.''). *See* also, *Weyerhaeuser* v. *Costle,* 590 F.2d 1011, 1058 (DC Cir. 1978) (''In the nature of things, no general limit, individual permit, or even any upset provision can anticipate all upset situations. After a certain point, the transgression of regulatory limits caused by 'uncontrollable acts of third parties,' such as strikes, sabotage, operator intoxication or insanity, and a variety of other eventualities, must be a matter for the administrative exercise of case-by-case enforcement discretion, not for specification in advance by regulation''). In addition, the goal of a best controlled or best performing source is to operate in such a way as to avoid malfunctions of the source, and accounting for malfunctions could lead to standards that are significantly less stringent than levels that are achieved by a well-performing non-malfunctioning source. The EPA's approach to malfunctions is consistent with CAA section 112 and is a reasonable interpretation of the statute.

In the event that a source fails to comply with the applicable CAA section 112(d) standards as a result of a malfunction event, the EPA would determine an appropriate response based on, among other things, the good faith efforts of the source to minimize emissions during malfunction periods, including preventative and corrective actions, as well as root cause analyses to ascertain and rectify excess emissions. The EPA would also consider whether the source's failure to comply with the CAA section 112(d) standard was, in fact, ''sudden, infrequent, not reasonably preventable'' and was not instead ''caused in part by poor maintenance or careless operation'' 40 CFR 63.2 (definition of malfunction).

Finally, the EPA recognizes that even equipment that is properly designed and maintained can sometimes fail and that such failure can sometimes cause an exceedance of the relevant emissions standard. (See, *e.g.,* State Implementation Plans: Policy Regarding Excessive Emissions During Malfunctions, Startup, and Shutdown (Sept. 20, 1999); Policy on Excess Emissions During Startup, Shutdown, Maintenance, and Malfunctions (Feb. 15, 1983).). The EPA is therefore proposing to add to the final rule an affirmative defense to civil penalties for exceedances of emissions limits that are caused by malfunctions. See 40 CFR 63.842 (defining ''affirmative defense'' to mean, in the context of an enforcement proceeding, a response or defense put forward by a defendant, regarding which the defendant has the burden of proof, and the merits of which are independently and objectively evaluated in a judicial or administrative proceeding). We also are proposing other regulatory provisions to specify the elements that are necessary to establish this affirmative defense; the source must prove by a preponderance of the evidence that it has met all of the elements set forth in 40 CFR 63.855 (see also 40 CFR 22.24). The criteria ensure that the affirmative defense is available only where the event that causes an exceedance of the emissions limit meets the narrow definition of malfunction in 40 CFR 63.2 (sudden, infrequent, not reasonably preventable and not caused by poor maintenance and or careless operation). For example, to successfully assert the affirmative defense, the source must prove by a preponderance of the evidence that excess emissions ''[w]ere caused by a sudden, infrequent, and unavoidable failure of air pollution control and monitoring equipment, process equipment, or a process to operate in a normal or usual manner * * *.'' The criteria also are designed to ensure that steps are taken to correct the malfunction, to minimize emissions in accordance with 40 CFR sections 63.843(f) and 63.844(f) to prevent future malfunctions. For example, the source must prove by a preponderance of the evidence that ''[r]epairs were made as expeditiously as possible when the applicable emissions limitations were being exceeded * * *'' and that ''[a]ll possible steps were taken to minimize the impact of the excess emissions on ambient air quality, the environment and human health * * *.'' In any judicial or administrative proceeding, the Administrator may challenge the assertion of the affirmative defense and, if the respondent has not met its burden of proving all of the requirements in the affirmative defense, appropriate penalties may be assessed in accordance with CAA section 113 (see also 40 CFR 22.27).

The EPA included an affirmative defense in the proposed rule in an attempt to balance a tension, inherent in many types of air regulation, to ensure adequate compliance while simultaneously recognizing that despite the most diligent of efforts, emission limits may be exceeded under circumstances beyond the control of the source. The EPA must establish emission standards that ''limit the quantity, rate, or concentration of emissions of air pollutants on a continuous basis.'' 42 U.S.C. 7602(k) (defining ''emission limitation and emission standard''). *See generally Sierra Club* v. *EPA,* 551 F.3d 1019, 1021 (DC Cir. 2008). Thus, the EPA is required to ensure that section 112 emissions limitations are continuous. The affirmative defense for malfunction events meets this requirement by ensuring that even where there is a malfunction, the emission limitation is still enforceable through injunctive relief. While ''continuous'' limitations, on the one hand, are required, there is also case law indicating that in many situations it is appropriate for EPA to account for the practical realities of technology. For example, in *Essex Chemical* v. *Ruckelshaus,* 486 F.2d 427, 433 (DC Cir. 1973), the DC Circuit acknowledged that in setting standards under CAA section 111 ''variant provisions'' such as provisions allowing for upsets during startup, shutdown and equipment malfunction ''appear necessary to preserve the reasonableness of the standards as a whole and that the record does not support the 'never to be exceeded' standard currently in force.'' See also, *Portland Cement Association* v. *Ruckelshaus,* 486 F.2d 375 (DC Cir. 1973). Though intervening case law such as *Sierra Club* v. *EPA* and the CAA 1977 amendments undermine the relevance of these cases today, they support the EPA's view that a system that incorporates some level of flexibility is reasonable. The affirmative defense simply provides for a defense to civil penalties for excess emissions that are proven to be beyond the control of the source. By incorporating an affirmative defense, the EPA has formalized its approach to upset events. In a Clean Water Act setting, the Ninth Circuit required this type of formalized approach when regulating ''upsets beyond the control of the permit holder.'' *Marathon Oil Co.* v. *EPA,* 564 F.2d 1253, 1272–73 (9th Cir. 1977). *But see, Weyerhaeuser Co.* v. *Costle,* 590 F.2d 1011, 1057–58 (DC Cir. 1978) (holding that an informal approach is adequate). The affirmative defense provisions give the EPA the flexibility to both ensure that its emission limitations are ''continuous'' as required by 42 U.S.C. 7602(k), and account for unplanned upsets and thus support the reasonableness of the standard as a whole.

Specifically, we are proposing the following rule changes:

- Add general duty requirements in 40 CFR sections 63.843 and 63.844 to replace General Provision requirements that reference vacated SSM provisions.
- Add replacement language that eliminates the reference to SSM exemptions applicable to performance tests in 40 CFR section 63.847(d).
- Add paragraphs in 40 CFR section 63.850(d) requiring the reporting of malfunctions as part of the affirmative defense provisions.
- Add paragraphs in 40 CFR section 63.850(e) requiring the keeping of certain records during malfunctions as part of the affirmative defense provisions.
- Revise Appendix A to subpart LL of part 63 to reflect changes in the applicability of the General Provisions to this subpart resulting from a court vacatur of certain SSM requirements in the General Provisions.

2. Electronic Reporting

The EPA must have performance test data to conduct effective reviews of CAA sections 112 and 129 standards, as well as for many other purposes including compliance determinations, emissions factor development, and annual emissions rate determinations. In conducting these required reviews, the EPA has found it ineffective and time consuming, not only for us, but also for regulatory agencies and source owners and operators, to locate, collect, and submit performance test data because of varied locations for data storage and varied data storage methods. In recent years, though, stack testing firms have typically collected performance test data in electronic format, making it possible to move to an electronic data submittal system that would increase the ease and efficiency of data submittal and improve data accessibility.

Through this proposal the EPA is presenting a step to increase the ease and efficiency of data submittal and improve data accessibility. Specifically, the EPA is proposing that owners and operators of Primary Aluminum Reduction Plant facilities submit electronic copies of required performance test reports to the EPA's WebFIRE database. The WebFIRE database was constructed to store performance test data for use in developing emissions factors. A description of the WebFIRE database is available at *http://cfpub.epa.gov/oarweb/index.cfm?action=fire.main.*

As proposed above, data entry would be through an electronic emissions test report structure called the Electronic Reporting Tool. The ERT would be able to transmit the electronic report through the EPA's Central Data Exchange network for storage in the WebFIRE database making submittal of data very straightforward and easy. A description of the ERT can be found at *http://www.epa.gov/ttn/chief/ert/ert_tool.html.*

The proposal to submit performance test data electronically to the EPA would apply only to those performance tests conducted using test methods that will be supported by the ERT. The ERT contains a specific electronic data entry form for most of the commonly used EPA reference methods. A listing of the pollutants and test methods supported by the ERT is available at *http://www.epa.gov/ttn/chief/ert/ert_tool.html.* We believe that industry would benefit from this proposed approach to electronic data submittal. Having these data, the EPA would be able to develop improved emissions factors, make fewer information requests, and promulgate better informed regulations.

One major advantage of the proposed submittal of performance test data through the ERT is a standardized method to compile and store much of the documentation required to be reported by this rule. Another advantage is that the ERT clearly states what testing information would be required. Another important proposed benefit of submitting these data to the EPA at the time the source test is conducted is that it should substantially reduce the effort involved in data collection activities in the future. When the EPA has performance test data in hand, there will likely be fewer or less substantial data collection requests in conjunction with prospective required residual risk assessments or technology reviews. This would result in a reduced burden on both affected facilities (in terms of reduced manpower to respond to data collection requests) and the EPA (in terms of preparing and distributing data collection requests and assessing the results).

State, local, and Tribal agencies could also benefit from more streamlined and accurate review of electronic data submitted to them. The ERT would allow for an electronic review process rather than a manual data assessment making review and evaluation of the source provided data and calculations easier and more efficient. Finally, another benefit of the proposed data submittal to WebFIRE electronically is that these data would greatly improve the overall quality of existing and new emissions factors by supplementing the pool of emissions test data for establishing emissions factors and by ensuring that the factors are more representative of current industry operational procedures. A common complaint heard from industry and regulators is that emissions factors are outdated or not representative of a particular source category. With timely receipt and incorporation of data from most performance tests, the EPA would be able to ensure that emissions factors, when updated, represent the most current range of operational practices. In summary, in addition to supporting regulation development, control strategy development, and other air pollution control activities, having an electronic database populated with performance test data would save industry, state, local, Tribal agencies, and the EPA significant time, money, and effort while also improving the quality of emissions inventories and, as a result, air quality regulations.

Records must be maintained in a form suitable and readily available for expeditious review, according to 63.10(b)(1). Electronic recordkeeping and reporting is available for many records, and is the form considered most suitable for expeditious review if available. Electronic recordkeeping and reporting is encouraged in this proposal and some records and reports are required to be kept in electronic format.

F. Compliance Dates

We are proposing that existing facilities must comply with the proposed revised emissions limits for Soderberg potlines (which are being proposed under CAA sections 112(f)(2) for all affected sources), no later than 90 days after the date of publication of the final rule. We are proposing that existing facilities must comply with all other changes proposed in this action (other than affirmative defense provisions and electronic reporting which are effective upon promulgation of the final rule) no later than 3 years after the date of publication of the final rule. All new or reconstructed facilities must comply with all requirements in this rule upon startup.

V. Summary of Cost, Environmental, and Economic Impacts

A. What are the affected sources?

The affected sources are new and existing potlines, new and existing pitch storage tanks, new and existing anode bake furnaces (except for one that is located at a facility that only produces anodes for use off-site), and new and existing paste production plants.

B. What are the air quality impacts?

The proposed rule will require the POM emissions from existing uncontrolled pitch storage tanks to be reduced by a minimum of 95 percent. This is estimated to result in a reduction of 1.6 tons per year (tpy) of POM. In addition, the proposed lower Soderberg potline POM limits would reduce POM emissions from the two Soderberg facilities, assuming production at plant capacity, by approximately 300 tpy, combined.

C. What are the cost impacts?

Under the proposed amendments, 8 facilities would be required to install or upgrade, and operate emissions control systems (such as activated carbon adsorbers or condensers) to control emissions of HAP from pitch storage tanks at total estimated cost of $167,832 per year, or $20,979 per facility. In addition, 12 facilities will have to conduct periodic performance tests for POM emissions from 45 prebake potlines at an estimated total cost of $90,000 per year for the source category, or $7,500 per year per facility. The total estimated cost of the rule is $258,000 per year.

D. What are the economic impacts?

We performed an economic impact analysis for the proposed modifications in this rulemaking. That analysis estimates total annualized costs of approximately $257,832 at 13 facilities and cost to revenue of less than 0.02% for the Primary Aluminum Production source category. For more information, please refer to the *Draft Economic Impact Analysis* for this proposed rulemaking that is available in the public docket for this proposed rulemaking.

E. What are the benefits?

This proposed rule will achieve about 1.6 tons per year reductions in POM emissions, which may result in a slight health benefit. The proposed limits of 3.9 pounds of COS per ton of aluminum produced (lb COS/ton Al) for existing facilities and 3.1 lb COS/ton Al for new facilities will prevent increases in COS emissions and prevent increases in SO_2 emissions as a co-benefit. The proposed COS standard will likely result in the use of lower sulfur content coke in the anode production processes. This reduction in anode coke sulfur content would result in decreases in emissions of both COS and sulfur dioxide (SO_2). We estimate that SO_2 emissions will decrease by 12 tons for each ton of COS reduction.

VI. Request for Comments

We are soliciting comments on all aspects of this proposed action. In addition to general comments on this proposed action, we are also interested in any additional data that may help to reduce the uncertainties inherent in the risk assessments and other analyses. We are specifically interested in receiving corrections to the site-specific emissions profiles used for risk modeling. Such data should include supporting documentation in sufficient detail to allow characterization of the quality and representativeness of the data or information. Section VII of this preamble provides more information on submitting data.

VII. Submitting Data Corrections

The site-specific emissions profiles used in the source category risk and demographic analyses are available for download on the RTR Web page at: *http://www.epa.gov/ttn/atw/rrisk/rtrpg.html*. The data files include detailed information for each HAP emissions release point for the facility included in the source category.

If you believe that the data are not representative or are inaccurate, please identify the data in question, provide your reason for concern, and provide any ''improved'' data that you have, if available. When you submit data, we request that you provide documentation of the basis for the revised values to support your suggested changes. To submit comments on the data downloaded from the RTR Web page, complete the following steps:

1. Within this downloaded file, enter suggested revisions to the data fields appropriate for that information. The data fields that may be revised include the following:

Data element	Definition
Control Measure	Are control measures in place? (yes or no)
Control Measure Comment	Select control measure from list provided, and briefly describe the control measure.
Delete	Indicate here if the facility or record should be deleted.
Delete Comment	Describes the reason for deletion.
Emissions Calculation Method Code for Revised Emissions.	Code description of the method used to derive emissions. For example, CEM, material balance, stack test, *etc.*
Emissions Process Group	Enter the general type of emissions process associated with the specified emissions point.
Fugitive Angle	Enter release angle (clockwise from true North); orientation of the y-dimension relative to true North, measured positive for clockwise starting at 0 degrees (maximum 89 degrees).
Fugitive Length	Enter dimension of the source in the east-west (x-) direction, commonly referred to as length (ft).
Fugitive Width	Enter dimension of the source in the north-south (y-) direction, commonly referred to as width (ft).
Malfunction Emissions	Enter total annual emissions due to malfunctions (tpy).
Malfunction Emissions Max Hourly	Enter maximum hourly malfunction emissions here (lb/hr).
North American Datum	Enter datum for latitude/longitude coordinates (NAD27 or NAD83); if left blank, NAD83 is assumed.
Process Comment	Enter general comments about process sources of emissions.
REVISED Address	Enter revised physical street address for MACT facility here.
REVISED City	Enter revised city name here.
REVISED County Name	Enter revised county name here.
REVISED Emissions Release Point Type	Enter revised Emissions Release Point Type here.
REVISED End Date	Enter revised End Date here.
REVISED Exit Gas Flow Rate	Enter revised Exit Gas Flowrate here (ft^3/sec).
REVISED Exit Gas Temperature	Enter revised Exit Gas Temperature here (F).
REVISED Exit Gas Velocity	Enter revised Exit Gas Velocity here (ft/sec).
REVISED Facility Category Code	Enter revised Facility Category Code here, which indicates whether facility is a major or area source.
REVISED Facility Name	Enter revised Facility Name here.
REVISED Facility Registry Identifier	Enter revised Facility Registry Identifier here, which is an ID assigned by the EPA Facility Registry System.
REVISED HAP Emissions Performance Level Code	Enter revised HAP Emissions Performance Level here.
REVISED Latitude	Enter revised Latitude here (decimal degrees).
REVISED Longitude	Enter revised Longitude here (decimal degrees).
REVISED MACT Code	Enter revised MACT Code here.
REVISED Pollutant Code	Enter revised Pollutant Code here.
REVISED Routine Emissions	Enter revised routine emissions value here (tpy).
REVISED SCC Code	Enter revised SCC Code here.
REVISED Stack Diameter	Enter revised Stack Diameter here (ft).
REVISED Stack Height	Enter revised Stack Height here (ft).
REVISED Start Date	Enter revised Start Date here.
REVISED State	Enter revised State here.
REVISED Tribal Code	Enter revised Tribal Code here.
REVISED Zip Code	Enter revised Zip Code here.
Shutdown Emissions	Enter total annual emissions due to shutdown events (tpy).
Shutdown Emissions Max Hourly	Enter maximum hourly shutdown emissions here (lb/hr).
Stack Comment	Enter general comments about emissions release points.
Startup Emissions	Enter total annual emissions due to startup events (tpy).
Startup Emissions Max Hourly	Enter maximum hourly startup emissions here (lb/hr).

Data element	Definition
Year Closed	Enter date facility stopped operations.

2. Fill in the commenter information fields for each suggested revision (*i.e.,* commenter name, commenter organization, commenter email address, commenter phone number, and revision comments).

3. Gather documentation for any suggested emissions revisions (*e.g.,* performance test reports, material balance calculations).

4. Send the entire downloaded file with suggested revisions in Microsoft® Access format and all accompanying documentation to Docket ID Number EPA–HQ–OAR–2011–0797 (through one of the methods described in the **ADDRESSES** section of this preamble). To expedite review of the revisions, it would also be helpful if you submitted a copy of your revisions to the EPA directly at *RTR@epa.gov* in addition to submitting them to the docket.

5. If you are providing comments on a facility, you need only submit one file for that facility, which should contain all suggested changes for all sources at that facility. We request that all data revision comments be submitted in the form of updated Microsoft® Access files, which are provided on the RTR Web Page at: *http://www.epa.gov/ttn/atw/rrisk/rtrpg.html.*

VIII. Statutory and Executive Order Reviews

A. Executive Order 12866: Regulatory Planning and Review and Executive Order 13563: Improving Regulation and Regulatory Review

Under Executive Order 12866 (58 FR 51735, October 4, 1993), this action is a significant regulatory action because it raises novel legal and policy issues. Accordingly, the EPA submitted this action to the Office of Management and Budget (OMB) for review under Executive Orders 12866 and 13563 (76 FR 3821, January 21, 2011) and any changes made in response to OMB recommendations have been documented in the docket for this action.

B. Paperwork Reduction Act

The information collection requirements in this rule have been submitted for approval to the Office of Management and Budget (OMB) under the *Paperwork Reduction Act,* 44 U.S.C. 3501 *et seq.* The Information Collection Request (ICR) document prepared by the EPA has been assigned the EPA ICR number 2447.01. The information collection requirements are not enforceable until OMB approves them. The information requirements are based on notification, recordkeeping, and reporting requirements in the NESHAP General Provisions (40 CFR part 63, subpart A), which are mandatory for all operators subject to national emissions standards. These recordkeeping and reporting requirements are specifically authorized by CAA section 114 (42 U.S.C. 7414). All information submitted to the EPA pursuant to the recordkeeping and reporting requirements for which a claim of confidentiality is made is safeguarded according to agency policies set forth in 40 CFR part 2, subpart B.

We are proposing new paperwork requirements for the Primary Aluminum Reduction Plant source category in the form of a one-time requirement to prepare design specifications for existing pitch storage tank controls, and submissions of test reports and calculations for demonstration of compliance with prebake potline POM limits.

For this proposed rule, the EPA is adding affirmative defense to the estimate of burden in the ICR. To provide the public with an estimate of the relative magnitude of the burden associated with an assertion of the affirmative defense position adopted by a source, the EPA has provided administrative adjustments to this ICR to show what the notification, recordkeeping and reporting requirements associated with the assertion of the affirmative defense might entail. The EPA's estimate for the required notification, reports and records for any individual incident, including the root cause analysis, totals $3,141 and is based on the time and effort required of a source to review relevant data, interview plant employees, and document the events surrounding a malfunction that has caused an exceedance of an emissions limit. The estimate also includes time to produce and retain the record and reports for submission to the EPA. The EPA provides this illustrative estimate of this burden because these costs are only incurred if there has been a violation and a source chooses to take advantage of the affirmative defense.

Given the variety of circumstances under which malfunctions could occur, as well as differences among sources' operation and maintenance practices, we cannot reliably predict the severity and frequency of malfunction-related excess emissions events for a particular source. It is important to note that the EPA has no basis currently for estimating the number of malfunctions that would qualify for an affirmative defense. Current historical records would be an inappropriate basis, as source owners or operators previously operated their facilities in recognition that they were exempt from the requirement to comply with emissions standards during malfunctions. Of the number of excess emissions events reported by source operators, only a small number would be expected to result from a malfunction (based on the definition above), and only a subset of excess emissions caused by malfunctions would result in the source choosing to assert the affirmative defense. Thus we believe the number of instances in which source operators might be expected to avail themselves of the affirmative defense will be extremely small.

With respect to the Primary Aluminum Production source category, the emissions controls are operational before the associated emission source(s) commence operation and remain operational until after the associated emission source(s) cease operation. Also, production operations would not proceed or continue if there is a malfunction of a control device and the time required to shut down production operations (*i.e.,* on the order of a day) is small compared to the averaging time of the emission standards (*i.e.,* monthly, quarterly and annual averages). Thus, we believe it is unlikely that a control device malfunction would cause an exceedance of any emission limit. Therefore, sources within this source category are not expected to have any need or use for the affirmative defense and we believe that there is no burden to the industry for the affirmative defense provisions in the proposed rule.

We expect to gather information on such events in the future and will revise this estimate as better information becomes available. We estimate 15 regulated entities are currently subject to subpart LL and will be subject to all proposed standards. The annual monitoring, reporting, and recordkeeping burden for this collection (averaged over the first 3 years after the effective date of the standards) for these amendments to subpart LL is estimated to be $148,000 per year. This includes 1,558 labor hours per year at a total labor cost of $148,000 per year, and total non-labor capital and operation and maintenance (O&M) costs of $500 per year. This estimate includes performance tests, notifications, reporting, and recordkeeping associated with the new requirements for existing pitch storage tanks and new and existing potlines. The total burden for the Federal government (averaged over the first 3 years after the effective date of the standard) is estimated to be 120 hours per year at a total labor cost of $11,400 per year. Burden is defined at 5 CFR 1320.3(b).

An agency may not conduct or sponsor, and a person is not required to respond to, a collection of information unless it displays a currently valid OMB control number. The OMB control numbers for the EPA's regulations in 40 CFR are listed in 40 CFR part 9. When these ICRs are approved by OMB, the agency will publish a technical amendment to 40 CFR part 9 in the **Federal Register** to display the OMB control numbers for the approved information collection requirements contained in the final rules.

To comment on the agency's need for this information, the accuracy of the provided burden estimates, and any suggested methods for minimizing respondent burden, the EPA has established a public docket for this rule, which includes this ICR, under Docket ID number EPA–HQ–OAR–2011–0797. Submit any comments related to the ICR to the EPA and OMB. See the **ADDRESSES** section at the beginning of this notice for where to submit comments to the EPA. Send comments to OMB at the Office of Information and Regulatory Affairs, Office of Management and Budget, 725 17th Street, NW., Washington, DC 20503, Attention: Desk Office for the EPA. Since OMB is required to make a decision concerning the ICR between 30 and 60 days after December 6, 2011, a comment to OMB is best assured of having its full effect if OMB receives it by January 5, 2012. The final rule will respond to any OMB or public comments on the information collection requirements contained in this proposal.

C. Regulatory Flexibility Act

The Regulatory Flexibility Act (RFA) generally requires an agency to prepare a regulatory flexibility analysis of any rule subject to notice and comment rulemaking requirements under the Administrative Procedure Act or any other statute unless the agency certifies that the rule will not have a significant economic impact on a substantial number of small entities. Small entities include small businesses, small organizations, and small governmental jurisdictions.

For purposes of assessing the impacts of this proposed rule on small entities, small entity is defined as: (1) A small business as defined by the Small Business Administration's (SBA) regulations at 13 CFR 121.201; (2) a small governmental jurisdiction that is a government of a city, county, town, school district or special district with a population of less than 50,000; and (3) a small organization that is any not-for-profit enterprise that is independently owned and operated and is not dominant in its field. For this source category, which has the NAICS code 331312, the SBA small business size standard is 1,000 employees according to the SBA small business standards definitions. There are no small entities subject to subpart LL.

After considering the economic impacts of today's proposed rule on small entities, I certify that this action will not have a significant economic impact on a substantial number of small entities. This proposed rule will not impose any requirements on small entities. We continue to be interested in the potential impacts of the proposed rule on small entities and welcome comment on issues related to such impacts.

D. Unfunded Mandates Reform Act

This proposed rule does not contain a Federal mandate under the provisions of Title II of the Unfunded Mandates Reform Act of 1995 (UMRA), 2 U.S.C. 1531–1538 for State, local, or Tribal governments or the private sector. The proposed rule would not result in expenditures of $100 million or more for State, local, and Tribal governments, in aggregate, or the private sector in any 1 year. The proposed rule imposes no enforceable duties on any State, local or Tribal governments or the private sector. Thus, this proposed rule is not subject to the requirements of sections 202 or 205 of the UMRA.

This proposed rule is also not subject to the requirements of section 203 of UMRA because it contains no regulatory requirements that might significantly or uniquely affect small governments because it contains no requirements that apply to such governments nor does it impose obligations upon them.

E. Executive Order 13132: Federalism

This proposed rule does not have federalism implications. It will not have substantial direct effects on the States, on the relationship between the national government and the States, or on the distribution of power and responsibilities among the various levels of government, as specified in Executive Order 13132. None of the facilities subject to this action are owned or operated by State governments, and, because no new requirements are being promulgated, nothing in this proposed rule will supersede State regulations. Thus, Executive Order 13132 does not apply to this proposed rule.

In the spirit of Executive Order 13132, and consistent with the EPA policy to promote communications between the EPA and State and local governments, the EPA specifically solicits comment on this proposed rule from State and local officials.

F. Executive Order 13175: Consultation and Coordination With Indian Tribal Governments

This proposed rule does not have Tribal implications, as specified in Executive Order 13175 (65 FR 67249, November 9, 2000). None of the provisions of this proposed rule will result in increased emissions of any hazardous air pollutant from any facility. The more stringent limitations of POM emissions from horizontal stud Soderberg potlines may result in decreased risk to Indian Tribal populations. Thus, Executive Order 13175 does not apply to this action.

The EPA specifically solicits additional comment on this proposed action from Tribal officials.

G. Executive Order 13045: Protection of Children From Environmental Health Risks and Safety Risks

This proposed rule is not subject to Executive Order 13045 (62 FR 19885, April 23, 1997) because it is not economically significant as defined in Executive Order 12866. Moreover, the agency does not believe the environmental health risks or safety risks addressed by this action present a disproportionate risk to children. Nevertheless, the public is invited to submit comments or identify studies and data that assess effects of early life exposure to HAP from Primary Aluminum sources. The EPA will typically accord greater weight to studies and data that have been peer reviewed.

H. Executive Order 13211: Actions Concerning Regulations That Significantly Affect Energy Supply, Distribution, or Use

This action is not a ''significant energy action'' as defined under Executive Order 13211, ''Actions Concerning Regulations That

Significantly Affect Energy Supply, Distribution, or Use'' (66 FR 28355, May 22, 2001), because it is not likely to have significant adverse effect on the supply, distribution, or use of energy. This action will not create any new requirements and therefore no additional costs for sources in the energy supply, distribution, or use sectors.

I. National Technology Transfer and Advancement Act

Section 12(d) of the National Technology Transfer and Advancement Act of 1995 (''NTTAA''), Public Law 104–113 (15 U.S.C. 272 note), directs the EPA to use voluntary consensus standards (VCS) in its regulatory activities unless to do so would be inconsistent with applicable law or otherwise impractical. VCS are technical standards (*e.g.,* materials specifications, test methods, sampling procedures, and business practices) that are developed or adopted by voluntary consensus standards bodies. NTTAA directs the EPA to provide Congress, through OMB, explanations when the agency decides not to use available and applicable VCS.

This proposed rulemaking involves technical standards. The EPA proposes to use ASTM D3177–02 (2007) Standard Test Methods for Total Sulfur in the Analysis Sample of Coal and Coke. This is a voluntary consensus method. This method can be obtained from the American Society for Testing and Materials, 100 Bar Harbor Drive, West Conshohocken, Pennsylvania 19428 (telephone number (610) 832–9500). This method was proposed because it is commonly used by primary aluminum reduction facilities to demonstrate compliance with sulfur dioxide emission limitations imposed in their current Title V permits. The EPA welcomes comments on this aspect of this proposed rulemaking and, specifically, invites the public to identify potentially-applicable voluntary consensus standards and to explain why such standards should be used in this regulation.

J. Executive Order 12898: Federal Actions To Address Environmental Justice in Minority Populations and Low-Income Populations

Executive Order 12898 (59 FR 7629, February 16, 1994) establishes Federal executive policy on environmental justice. Its main provision directs Federal agencies, to the greatest extent practicable and permitted by law, to make environmental justice part of their mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of their programs, policies, and activities on minority populations and low-income populations in the United States.

For the primary aluminum source category, EPA has determined that the current health risks posed to anyone by actual emissions from this source category are within the acceptable range, and that the proposed rulemaking will not appreciably reduce these risks further. As a result, this proposed rule will not have disproportionately high and adverse human health or environmental effects on minority or low-income populations.

To examine the potential for any environmental justice issues that might be associated with each source category, we evaluated the distributions of HAP-related cancer and non-cancer risks across different social, demographic, and economic groups within the populations living near the facilities where this source category is located. The methods used to conduct demographic analyses for this rule are described in the document *Draft Residual Risk Assessment for the Primary Aluminum Reduction Plant Source Category* which may be found in the docket for this rulemaking. The development of demographic analyses to inform the consideration of environmental justice issues in the EPA rulemakings is an evolving science. The EPA offers the demographic analyses in today's proposed rulemaking as examples of how such analyses might be developed to inform such consideration, and invites public comment on the approaches used and the interpretations made from the results, with the hope that this will support the refinement and improve utility of such analyses.

In the demographics analysis, we focused on populations within 50 km of the facilities in this source category with emissions sources subject to the MACT standard. More specifically, for these populations we evaluated exposures to HAP that could result in cancer risks of 1 in one million or greater. We compared the percentages of particular demographic groups within the focused populations to the total percentages of those demographic groups nationwide. The results of this analysis are documented in the document *Draft Residual Risk Assessment for the Primary Aluminum Reduction Plant Source Category* in the docket for this proposed rulemaking.

List of Subjects in 40 CFR Part 63

Environmental protection, Air pollution control, Hazardous substances, Incorporation by reference, Reporting and recordkeeping requirements.

Dated: November 4, 2011.

Lisa P. Jackson,

Administrator.

For the reasons stated in the preamble, part 63 of title 40, chapter I, of the Code of Federal Regulations is proposed to be amended as follows:

PART 63—[AMENDED]

1. The authority citation for part 63 continues to read as follows:

Authority: 42 U.S.C. 7401, *et seq.*

Subpart LL—[AMENDED]

2. Section 63.840 is amended by revising paragraph (a) to read as follows:

§ 63.840 Applicability.

(a) Except as provided in paragraph (b) of this section, the requirements of this subpart apply to the owner or operator of each new or existing pitch storage tank, potline, paste production plant and anode bake furnace associated with primary aluminum production and located at a major source as defined in § 63.2.

* * * * *

3. Section 63.841 is amended by adding paragraph (a)(3) to read as follows:

§ 63.841 Incorporation by reference.

(a) * * *

(3) ASTM D3177–02 (2007) Standard Test Methods for Total Sulfur in the Analysis Sample of Coal and Coke.

* * * * *

4. Section 63.842 is amended to read as follows:

a. Removing the definition for ''Vertical stud Soderberg one (VSS1)'' and

b. Adding, in alphabetical order, definitions for ''Affirmative defense'' and ''Startup of an anode bake furnace''

§ 63.842 Definitions.

* * * * *

Affirmative defense means, in the context of an enforcement proceeding, a response or defense put forward by a defendant, regarding which the defendant has the burden of proof, and the merits of which are independently and objectively evaluated in a judicial or administrative proceeding.

* * * * *

Startup of an anode bake furnace means the process of initiating heating to the anode baking furnace where all sections of the furnace have previously been at ambient temperature. The startup or re-start of the furnace begins when the heating begins. The startup or re-start concludes at the start of the second anode bake cycle.

* * * * *

5. Section 63.843 is amended to read as follows:

a. Revising paragraph (a)(1)introductory text;

b. Removing and reserving paragraph (a)(1)(v);

c. Revising paragraph (a)(2)introductory text, and (a)(2)(i);

d. Removing and reserving paragraph (a)(2)(ii);

e. Revising paragraph (a)(2)(iii); and

f. Adding paragraphs (a)(2)(iv) through (a)(2)(vii), (d), (e), and (f)

§ 63.843 Emission limits for existing sources.

(a) * * *

(1) Emissions of TF must not exceed:

* * * * *

(v) [Reserved]

* * * * *

(2) Emissions of POM must not exceed:

(i) 1.5 kg/Mg (3.0 lb/ton) of aluminum produced for each HSS potline;

(ii) [Reserved;]

(iii) 1.9 kg/Mg (3.8 lb/ton) of aluminum produced for each VSS2 potline;

(iv) 0.31 kg/Mg (0.62 lb/ton) of aluminum produced for each existing CWPB1 prebake potline;

(v) 0.65 kg/Mg (1.3 lb/ton) of aluminum produced for each existing CWPB2 prebake potline;

(vi) 0.63 kg/Mg (1.26 lb/ton) of aluminum produced for each existing CWPB3 prebake potline;

(vii) 0.33 kg/Mg (0.65 lb/ton) of aluminum produced for each existing SWPB prebake potline;

* * * * *

(d) *Pitch storage tanks.* Each pitch storage tank shall be equipped with an emission control system designed and operated to reduce inlet emissions of POM by 95 percent or greater.

(e) *COS limit.* Emissions of COS must not exceed 3.9 lb/ton of aluminum produced.

(f) At all times, the owner or operator must operate and maintain any affected source, including associated air pollution control equipment and monitoring equipment, in a manner consistent with safety and good air pollution control practices for minimizing emissions. Determination of whether such operation and maintenance procedures are being used will be based on information available to the Administrator which may include, but is not limited to, monitoring results, review of operation and maintenance procedures, review of operation and maintenance records, and inspection of the source.

6. Section 63.844 is amended to read as follows:

a. Adding paragraph (a)(3);

b. Adding paragraph (e); and

c. Adding paragraph (f)

§ 63.844 Emission limits for new or reconstructed sources.

(a) * * *

(3) *POM limit.* Emissions of POM from prebake potlines must not exceed 0.31 kg/Mg (0.62 lb/ton) of aluminum produced.

* * * * *

(e) *COS limit.* Emissions of COS must not exceed 3.1 lb/ton of aluminum produced.

(f) At all times, the owner or operator must operate and maintain any affected source, including associated air pollution control equipment and monitoring equipment, in a manner consistent with safety and good air pollution control practices for minimizing emissions. Determination of whether such operation and maintenance procedures are being used will be based on information available to the Administrator which may include, but is not limited to, monitoring results, review of operation and maintenance procedures, review of operation and maintenance records, and inspection of the source.

7. Section 63.846 is amended to read as follows:

a. Revising paragraph (b);

b. Revising paragraph (d)(2)(iv);

c. Revising paragraphs (d)(4)(ii) and (iii);

d. Removing and reserving paragraph (d)(4)(iv); and

e. Adding paragraphs (e) and (f)

§ 63.846 Emission averaging.

* * * * *

(b) Soderberg Potlines. The owner or operator may average TF emissions from potlines and demonstrate compliance with the limits in Table 1 of this subpart using the procedures in paragraphs (b)(1) and (b)(2) of this section. The owner or operator also may average POM emissions from potlines and demonstrate compliance with the limits in Table 2 of this subpart using the procedures in paragraphs (b)(1) and (b)(3) of this section.

* * * * *

(d) * * *

(2) * * *

(iv) The test plan for the measurement of TF or POM emissions in accordance with the requirements in §§ 63.847(b) and (k);

* * * * *

(4) * * *

(ii) The inclusion of any emission source other than an existing potline or existing anode bake furnace subject to the same operating permit; or

(iii) The inclusion of any potline or anode bake furnace while it is shut down, in the emission calculations.

(iv) [Reserved]

* * * * *

(e) *TF emissions from Prebake Potlines.* The owner or operator may average TF emissions from potlines and demonstrate compliance with the limits in Table 1 of this subpart using the procedures in paragraphs (e)(1) and (e)(2) of this section.

(1) Monthly average emissions of TF must not exceed the applicable emission limit in Table 1 of this subpart. The emission rate must be calculated based on the total emissions from all potlines over the period divided by the quantity of aluminum produced during the period, from all potlines comprising the averaging group.

(2) To determine compliance with the applicable emission limit in Table 1 of this subpart for TF emissions, the owner or operator must determine the monthly average emissions (in lb/ton) from each potline from at least three runs per potline each month for TF secondary emissions using the procedures and methods in §§ 63.847 and 63.849. The owner or operator must combine the results of secondary TF monthly average emissions with the TF results for the primary control system and divide total emissions by total aluminum production.

(f) *POM Emissions from Prebake Potlines.* The owner or operator also may average POM emissions from potlines and demonstrate compliance with the limits in Table 2 of this subpart using the procedures in paragraphs (f)(1) and (f)(2) of this section.

(1) Average emissions of POM for each compliance demonstration period, must not exceed the applicable emission limit in Table 2 of this subpart. The emission rate must be calculated based on the total emissions from all potlines divided by the quantity of aluminum produced during the period, from all potlines comprising the averaging group.

(2) To determine compliance with the applicable emission limit in Table 2 of this subpart for POM emissions, the owner or operator must determine the emissions (in lb/ton) from each potline using the procedures and methods in §§ 63.847 and 63.849. The owner or operator must combine the results of measured or calculated secondary POM emissions with the POM emissions from the primary control system and divide

total emissions by total aluminum production.

8. Section 63.847 is amended to read as follows:

a. Revising paragraph (a)

b. Removing and reserving paragraph (a)(3);

c. Revising paragraph (b) introductory text;

d. Removing and reserving paragraph (b)(6);

e. Revising paragraphs (c)(1); (c)(2); and (c)(3);

f. Removing paragraphs (c)(2)(i) through (iii);

g. Revising paragraph (c)(3);

h. Revising paragraphs (d) introductory text and (d)(2);

i. Adding paragraph (d)(5);

j. Revising paragraph (e)(2);

k. Adding paragraph (e)(8);

l. Revising paragraph (g) introductory text;

m. Adding and reserving paragraph (i); and

n. Adding paragraphs (j), (k), (l), and (m).

The revisions and additions read as follows:

§ 63.847 Compliance Provisions.

(a) *Compliance dates.* The owner operator of a primary aluminum reduction plant must comply with the requirements of this subpart by the applicable compliance date in paragraph (a)(1), (a)(2) or (a)(3) of this section:

(1) Except as noted in paragraph (a)(2) of this section, the compliance date for an owner or operator of an existing plant or source subject to the provisions of this subpart is October 7, 1999.

(2) The compliance dates for existing plants and sources are:

(i) [Date 90 days after date of publication of final rule] for Soderberg potlines subject to emission limits in §§ 63.843(a)(2)(i) and (iii) which became effective [Date of publication of final rule].

(ii) [Date 3 years after date of publication of final rule] for prebake potlines subject to emission limits in §§ 63.843(a)(2)(iv) through (vii) and § 63.848(n) which became effective [Date of publication of final rule].

(iii) [Date 3 years after date of publication of final rule] for potlines subject to the work practice standards in § 63.854 which became effective [insert date of publication of final rule].

(iv) [Date 3 years after date of publication of final rule] for anode bake furnaces subject to the startup practices in § 63.847(m) which became effective [insert date of publication of final rule].

(v) [Date 3 years after date of publication of final rule] for compliance with the pitch storage tank POM limit provisions of § 63.843(d) and the COS emission limit provisions of §§ 63.843(e) and 63.844(e).

(vi) [Date of publication of final rule] for the malfunction provisions of §§ 63.850(d)(2) and (e)(4)(xvi) and (xvii), the affirmative defense provisions of § 63.855, and the electronic reporting provisions of §§ 63.850(c) and (f).

(3) [Reserved]

* * * * *

(b) *Test plan for TF from all anode bake furnaces and potlines and POM from Soderberg potlines.* The owner or operator shall prepare a site-specific test plan prior to the initial performance test according to the requirements of § 63.7(c) of this part. The test plan must include procedures for conducting the initial performance test and for subsequent performance tests required in § 63.848 for emission monitoring. In addition to the information required by § 63.7, the test plan shall include:

* * * * *

(6) [Reserved]

* * * * *

(c) * * *

(1) During the first month following the compliance date for an existing potline (or potroom group), anode bake furnace or pitch storage tank;

(2) By the 180th day following startup for a potline or potroom group for which the owner or operator elects to conduct an initial performance test. The 180-day period starts when the first pot in a potline or potroom group is energized.

(3) By the 180th day following startup for a potline or potroom group that was shut down at the time compliance would have otherwise been required and is subsequently restarted. The 180-day period starts when the first pot in a potline or potroom group is energized.

(d) *Performance test requirements.* The initial performance test and all subsequent performance tests must be conducted in accordance with the requirements of the general provisions in subpart A of this part, the approved test plan, and the procedures in this section. Performance tests must be conducted under such conditions as the Administrator specifies to the owner or operator based on representative performance of the affected source for the period being tested. Upon request, the owner or operator must make available to the Administrator such records as may be necessary to determine the conditions of performance tests.

* * * * *

(2) *POM emissions from Soderberg potlines.* For each Soderberg (HSS and VSS2) potline, the owner or operator must measure and record the emission rate of POM exiting the primary emission control system and the rate of secondary emissions exiting through each roof monitor, or for a plant with roof scrubbers, exiting through the scrubbers. Using the equation in paragraph (e)(2) of this section, the owner or operator must compute and record the average of at least three runs each quarter (one run per month) for secondary emissions and at least three runs each year for the primary control system to determine compliance with the applicable emission limit. Compliance is demonstrated when the emission rate of POM is equal to or less than the applicable emission limit in §§ 63.843, 63.844 or 63.846.

* * * * *

(5) *POM emissions from prebake potlines.* For each prebake potline, the owner or operator shall measure and record the emission rate of POM exiting the primary emission control system. The owner or operator shall compute and record the average of at least three runs every five years. For each prebake potline for which the owner or operator chooses to demonstrate compliance using the provisions of § 63.847(e)(2), the owner or operator shall measure and record the emission rate of secondary emissions exiting through each roof monitor, or for a plant with roof scrubbers, exiting through the scrubbers. The owner or operator shall compute and record the average of at least three runs every five years for secondary emissions. The owner or operator shall calculate POM emissions in accordance with §§ 63.847(e)(2) or (8). Compliance is demonstrated when the emission rate of POM is equal to or less than the applicable emission limit in §§ 63.843, 63.844 or 63.846.

(e) * * *

(2) Compute the emission rate of POM from each Soderberg potline, and from those prebake potlines for which the owner or operator chooses to measure secondary emissions, using Equation 1,

Where:

E_p = emission rate of POM from the potline, kg/mg (lb/ton); and

C_s = concentration of POM, mg/dscm (mg/dscf). POM emission data collected during the installation and startup of a cathode must not be included in C_s.

* * * * *

(8) Compute the rate of POM from each prebake potline for which the owner or operator does not choose to determine the measure the secondary emissions using Equation 3:

$$E_{pp} = \frac{(C_{pp1} \times Q_1) + (C_{pF2} \times \frac{C_{pp1}}{C_{pF1}} \times Q_2)}{(P \times K)} \qquad \text{(Equation 3)}$$

Where:

E_{pp} = emission rate of POM from a potline, kg/Mg (lb/ton);
C_{pp1} = concentration of POM from the primary control system, mg/dscm (mg/dscf);
Q_1 = volumetric flow rate of effluent gas from the primary control system dscm/hr (dscf/hr);
C_{pF2} = concentration of TF from the secondary control system or roof monitor, mg/dscm (mg/dscf);
C_{pF1} = concentration of TF from the primary control system, mg/dscm (mg/dscf); and
Q_2 = volumetric flow rate of effluent gas from the secondary control system or roof monitor, dscm/hr (dscf/hr).

* * * * *

(g) *Pitch storage tanks.* The owner or operator must demonstrate initial compliance with the standard for pitch storage tanks in §§ 63.843(d) and 63.844(d) by preparing a design evaluation or by conducting a performance test. The owner or operator shall submit for approval by the regulatory authority the information specified in paragraph (g)(1) of this section, along with the information specified in paragraph (g)(2) of this section where a design evaluation is performed or the information specified in paragraph (g)(3) of this section where a performance test is conducted.

* * * * *

(i) [Reserved]

(j) *COS Emissions.* The owner operator of each plant must calculate the facility wide emission rate of COS for each calendar month of operation using the following equation:

$$E_{COS} = [\,K\,] \times \left[\frac{Y}{Z}\right] \times [\,\%S\,]$$

Where:

E_{COS} = the facility wide emission rate of COS during the calendar month in pounds per ton of aluminum produced;
K = factor accounting for molecular weights and conversion of sulfur to carbonyl sulfide = 234;
Y = the tons of anode used at the facility during the calendar month;
Z = the tons of aluminum produced at the facility during the calendar month; and
%S = the weighted average sulfur content of the anode coke utilized in the production of aluminum during the calendar month (*e.g.,* if the weighted average sulfur content of the anode coke utilized during the calendar month was 2.5%, then %S = 0.025).

Compliance is demonstrated if the calculated value of E_{COS} is less than the applicable standard for COS emissions in §§ 63.843(e) and 63.844(e).

(k) *Test plan POM from prebake potlines.* The owner or operator must prepare a site-specific test plan prior to the initial performance test according to the requirements of § 63.7(c) of this part. The test plan must include procedures for conducting the initial performance test and for subsequent performance tests required in § 63.848 for emission monitoring. In addition to the information required by § 63.7 the test plan shall include:

(1) Procedures to ensure a minimum of three runs are performed for the primary control system for each source;

(2) For a source with a single control device exhausted through multiple stacks, procedures to ensure that at least three runs are performed by a representative sample of the stacks satisfactory to the applicable regulatory authority;

(3) For multiple control devices on a single source, procedures to ensure that at least one run is performed for each control device by a representative sample of the stacks satisfactory to the applicable regulatory authority;

(4) For plants with roof scrubbers, procedures for rotating sampling among the scrubbers or other procedures to obtain representative samples as approved by the applicable regulatory authority.

(l) *Potlines.* The owner or operator shall develop a written startup plan as described in § 63.854 that contains specific procedures to be followed during startup periods of potline(s). Compliance with the applicable standards in § 63.854 will be demonstrated through site inspection(s) and review of site records by the applicable regulatory authority.

(m) *Anode bake furnaces.* If you own or operate a new or existing primary aluminum reduction affected source, you must develop a written startup plan as described in paragraphs (m)(1) through (4) of this section. Compliance with the startup plan will be demonstrated through site inspection(s) and review of site records by the applicable regulatory authority. The written startup plan must contain specific procedures to be followed during startup periods of anode bake furnaces, including the following:

(1) A requirement to develop an anode bake furnace startup schedule prior to startup of the first anode bake furnace.

(2) Records of time, date, duration and any nonroutine actions taken during startup of the furnaces.

(3) A requirement that the associated emission control system should be operating within normal parametric limits prior to startup of the first anode bake furnace.

(4) A requirement to shut down the anode bake furnaces immediately if the associated emission control system is off line at any time during startup.

9. Section 63.848 is amended by revising paragraph (b) and adding paragraph (n) to read as follows:

§ 63.848 Emission monitoring requirements.

* * * * *

(b) *POM emissions from Soderberg potlines.* Using the procedures in § 63.847 and in the approved test plan, the owner or operator shall monitor emissions of POM from each Soderberg (HSS and VSS2) potline every three months. The owner or operator shall compute and record the quarterly (3-month) average from at least one run per month for secondary emissions and the previous 12-month average of all runs for the primary control systems to determine compliance with the applicable emission limit. The owner or operator must include all valid runs in the quarterly (3-month) average. The duration of each run for secondary emissions must represent a complete operating cycle. The primary control system must be sampled over an 8-hour period, unless site-specific factors dictate an alternative sampling time subject to the approval of the regulatory authority.

* * * * *

(n) *POM emissions from prebake potlines.* Using the procedures in § 63.847 and in the approved test plan, the owner or operator must monitor emissions of POM from each prebake potline every five years. The owner or operator must compute and record the sum of the average primary and secondary emissions using the procedures of §§ 63.847(e)(2) or (e)(8).

10. Section 63.849 is amended by adding paragraph (f) to read as follows:

§ 63.849 Test methods and procedures.

* * * * *

(f) The owner or operator must use ASTM Method D3177—02 (2007) for determination of the sulfur content in anode coke shipments to determine compliance with the applicable facility wide emission limit for COS emissions.

11. Section 63.850 is amended to read as follows:

a. Revising paragraphs (c) and (d);

b. Removing and reserving paragraph (e)(4)(iii); and

c. Adding paragraphs (e)(4)(xvi), (e)(4)(xvii) and (f).

The revisions and additions read as follows:

§ 63.850 Notification, reporting and recordkeeping requirements.

* * * * *

(c) As of January 1, 2012, and within 60 days after the date of completing each performance test, as defined in § 63.2, and as required in this subpart, the owner or operator must submit performance test data, except opacity data, electronically to the EPA's Central Data Exchange by using the ERT (see *http://www.epa.gov/ttn/chief/ert/erttool.html/*) or other compatible electronic spreadsheet. Only data collected using test methods compatible with ERT are subject to this requirement to be submitted electronically into the EPA's WebFIRE database.

(d) *Reporting.* In addition to the information required under § 63.10 of the General Provisions, the owner or operator must provide semi-annual reports containing the information specified in paragraphs (d)(1) through (d)(2) of this section to the Administrator or designated authority.

(1) *Excess emissions report.* As required by § 63.10(e)(3), the owner or operator must submit a report (or a summary report) if measured emissions are in excess of the applicable standard. The report must contain the information specified in § 63.10(e)(3)(v) and be submitted semiannually unless quarterly reports are required as a result of excess emissions.

(2) If there was a malfunction during the reporting period, the owner or operator must submit a report that includes the number, duration, and a brief description for each type of malfunction which occurred during the reporting period and which caused or may have caused any applicable emission limitation to be exceeded. The report must also include a description of actions taken by an owner or operator during a malfunction of an affected source to minimize emissions in accordance with §§ 63.843(f) and 63.844(f), including actions taken to correct a malfunction.

(e) * * *

(4) * * *

(iii) [Reserved]

* * * * *

(xvi) Records of the occurrence and duration of each malfunction of operation (*i.e.,* process equipment) or the air pollution control equipment and monitoring equipment.

(xvii) Records of actions taken during periods of malfunction to minimize emissions in accordance with §§ 63.843 and 63.844, including corrective actions to restore malfunctioning process and air pollution control and monitoring equipment to its normal or usual manner of operation.

(f) All reports required by this subpart not subject to the requirements in paragraph (b) of this section must be sent to the Administrator at the appropriate address listed in § 63.13. If acceptable to both the Administrator and the owner or operator of a source, these reports may be submitted on electronic media. The Administrator retains the right to require submittal of reports subject to paragraph (b) of this section in paper format.

12. Section 63.854 is added to read as follows:

§ 63.854 Work Practice Standards for Periods of Startup.

(a) *Startup of potlines.* If you own or operate a new or existing primary aluminum reduction affected source, you must comply with the requirements of paragraphs (a)(1) through (7) of this section during startup for each affected potline.

(1) Develop a potline startup schedule before starting up the potline.

(2) Keep records of number of pots started per day.

(3) Bring the potline scrubbers and exhaust fans on line prior to energizing the first cell being restarted.

(4) Ensure that the primary capture and control system is operating at all times during startup.

(5) Keep pots covered during startup as much as practicable to include but not limited to minimizing the removal of covers or panels of the pots on which work is being performed.

(6) Inspect potlines daily during startup and perform the following work practices as specified in paragraphs (a)(6)(i) through (iv) of this section.

(i) Identify unstable pots as soon as practicable but in no case more than 12 hours from the time the pot became unstable;

(ii) Reduce cell temperatures to as low as practicable, but no higher than the maximum temperature specified in the operating plan described in paragraph (a)(7) of this section;

(iii) Reseal pot crusts that have been broken as often and as soon as practicable but in no case more than 24 hours from the time the crust was broken; and

(iv) Adjust pot parameters to their optimum levels, as specified in the operating plan described in paragraph (a)(7) of this section, including, but not limited to, the following parameters: Alumina addition rate, exhaust air flow, cell voltage, feeding level, anode current and liquid and solid bath levels.

(7) Prepare a written operating plan to minimize emissions during startup to include, but not limited to, the requirements in (a)(1) through (6) of this section.

13. Section 63.855 is added to read as follows:

§ 63.855 Affirmative defense for exceedance of emission limit during malfunction.

In response to an action to enforce the standards set forth in this subpart, you may assert an affirmative defense to a claim for civil penalties for exceedances of such standards that are caused by malfunction, as defined at § 63.2. Appropriate penalties may be assessed, however, if you fail to meet your burden of proving all of the requirements in the affirmative defense. The affirmative defense shall not be available for claims for injunctive relief.

(a) To establish the affirmative defense in any action to enforce such a limit, you must timely meet the notification requirements in § 63.850, and must prove by a preponderance of evidence that:

(1) The excess emissions:

(i) Were caused by a sudden, infrequent, and unavoidable failure of air pollution control and monitoring equipment, process equipment, or a process to operate in a normal or usual manner; and

(ii) Could not have been prevented through careful planning, proper design or better operation and maintenance practices; and

(iii) Did not stem from any activity or event that could have been foreseen and avoided, or planned for.

(iv) Were not part of a recurring pattern indicative of inadequate design, operation, or maintenance; and

(2) Repairs were made as expeditiously as possible when the applicable emissions limitations were being exceeded. Off-shift and overtime labor were used, to the extent practicable to make these repairs; and

(3) The frequency, amount and duration of the excess emissions (including any bypass) were minimized to the maximum extent practicable during periods of such emissions; and

(4) If the excess emissions resulted from a bypass of control equipment or a process, then the bypass was unavoidable to prevent loss of life,

personal injury, or severe property damage; and

(5) All possible steps were taken to minimize the impact of the excess emissions on ambient air quality, the environment and human health; and

(6) All emissions monitoring and control systems were kept in operation if at all possible, consistent with safety and good air pollution control practices; and

(7) All of the actions in response to the excess emissions were documented by properly signed, contemporaneous operating logs; and

(8) At all times, the affected source was operated in a manner consistent with good practices for minimizing emissions; and

(9) A written root cause analysis has been prepared, the purpose of which is to determine, correct, and eliminate the primary causes of the malfunction and the excess emissions resulting from the malfunction event at issue. The analysis shall also specify, using best monitoring methods and engineering judgment, the amount of excess emissions that were the result of the malfunction.

(b) *Notification.* The owner or operator of the affected source experiencing an exceedance of its emissions limit(s) during a malfunction, shall notify the Administrator by telephone or facsimile transmission as soon as possible, but no later than two business days after the initial occurrence of the malfunction, if it wishes to avail itself of an affirmative defense to civil penalties for that malfunction. The owner or operator seeking to assert an affirmative defense, shall also submit a written report to the Administrator within 45 days of the initial occurrence of the exceedance of the standards in this subpart to demonstrate, with all necessary supporting documentation, that it has met the requirements set forth in paragraph (e) of this section. The owner or operator may seek an extension of this deadline for up to 30 additional days by submitting a written request to the Administrator before the expiration of the 45 day period. Until a request for an extension has been approved by the Administrator, the owner or operator is subject to the requirement to submit such report within 45 days of the initial occurrence of the exceedance.

14. Table 1 to Subpart LL of Part 63 is revised to read as follows:

TABLE 1 TO SUBPART LL OF PART 63—POTLINE TF LIMITS FOR EMISSION AVERAGING

Type	Monthly TF limit (1b/ton) (for given number of potlines)						
	2 lines	3 lines	4 lines	5 lines	6 lines	7 lines	8 lines
CWPB1	1.7	1.6	1.5	1.5	1.4	1.4	1.4
CWPB2	2.9	2.8	2.7	2.7	2.6	2.6	2.6
CWPB3	2.3	2.2	2.2	2.1	2.1	2.1	2.1
VSS2	2.6	2.5	2.5	2.4	2.4	2.4	2.4
HSS	2.5	2.4	2.4	2.3	2.3	2.3	2.3
SWPB	1.4	1.3	1.3	1.2	1.2	1.2	1.2

15. Table 2 to Subpart LL of Part 63 is revised to read as follows:

TABLE 2 TO SUBPART LL OF PART 63—POTLINE POM LIMITS FOR EMISSION AVERAGING

Type	POM limit (lb/ton) (for given number of potlines)						
	2 lines	3 lines	4 lines	5 lines	6 lines	7 lines	8 lines
HSS	3.5	3.2	3.1	3.0	3.0	2.9	2.8
VSS2	3.5	3.3	3.2	3.1	3.0	2.9	2.9
CWPB1	0.63	0.56	0.52	0.52	0.48	0.48	0.48
CWBP2	1.4	1.35	1.31	1.31	1.26	1.26	1.26
CWBP3	1.33	1.28	1.28	1.26	1.26	1.26	1.26
SWPB	0.63	0.56	0.52	0.52	0.48	0.48	0.48

16. Appendix A to Subpart LL of Part 63 is revised to read as follows:

Appendix A to Subpart LL of Part 63—Applicability of General Provisions (40 CFR Part 63, Subpart A)

Reference Section(s) * * *	Applies to subpart LL	Comment
63.1	Yes.	
63.2	Yes.	
63.3	Yes.	
63.4	Yes.	
63.5	Yes.	
63.6(a), (b), (c)	Yes.	
63.6(d)	No	Section reserved.
63.6(e)(1)(i)	No	See §§ 63.843(f) and 63.844(f) for general duty requirement.
63.6(e)(1)(ii)	No.	
63.6(e)(1)(iii)	Yes.	

Reference Section(s) * * *	Applies to subpart LL	Comment
63.6(e)(2)	No	Section reserved.
63.6(e)(3)	No.	
63.6(f)(1)	No.	
63.6(g)	Yes.	
63.6(h)	No	No opacity limits in rule.
63.6(i)	Yes.	
63.6(j)	Yes.	
63.7(a) through (d)	Yes.	
63.7(e)(1)	No	See § 63.847(d).
63.7(e)(2) through (e)(4)	Yes.	
63.7(f), (g), (h)	Yes.	
63.8(a) and (b)	Yes.	
63.8(c)(1)(i)	No	See §§ 63.843(f) and 63.844(f) for general duty requirement.
63.8(c)(1)(ii)	Yes.	
63.8(c)(1)(iii)	No.	
63.8(c)(2) through (d)(2)	Yes.	
63.8(d)(3)	Yes, except for last sentence.	
63.8(e) through (g)	Yes.	
63.9(a), (b), (c), (e), (g), (h)(1) through (3), (h)(5) and (6), (i) and (j).	Yes.	
63.9(f)	No.	
63.9(h)(4)	No	Section reserved.
63.10(a)	Yes.	
63.10(b)(1)	Yes.	
63.10(b)(2)(i)	No.	
63.10(b)(2)(ii)	No	See §§ 63.850(e)(4)(xvi) and (xvii) for recordkeeping of occurrence and duration of malfunctions and recordkeeping of actions taken during malfunction.
63.10(b)(2)(iii)	Yes.	
63.10(b)(2)(iv) and (b)(2)(v)	No.	
63.10(b)(2)(vi) through (b)(2)(xiv)	Yes.	
63.(10)(b)(3)	Yes.	
63.10(c)(1) through (9)	Yes.	
63.10(c)(10) and (11)	No	See §§ 63.850(e)(4)(xvi) and (xvii) for recordkeeping of malfunctions.
63.10(c)(12) through (c)(14)	Yes.	
63.10(c)(15)	No.	
63.10(d)(1) through (4)	Yes.	
63.10(d)(5)	No	See § 63.850(d)(2) for reporting of malfunctions.
63.10(e) and (f)	Yes.	
63.11	No	Flares will not be used to comply with the emission limits.
63.12 through 63.15	Yes.	

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